

DES - Cours de BASE

Année académique 2020-2021

Pathologie traumatique aiguë crânio-cérébrale et spinale



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Trauma crânien

lésions osseuses



'Fissure'
Non déplacée



Fracture



'Embarrure'



Fracture
comminutive

Collections hémorragiques extra-parenchymateuses
* péri-cérébrales
(* intra-ventriculaires)

HED

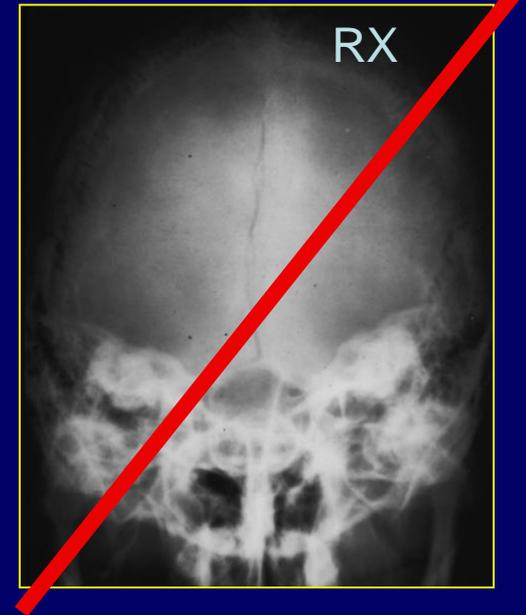
HSD

(HSA)

lésions parenchymateuses

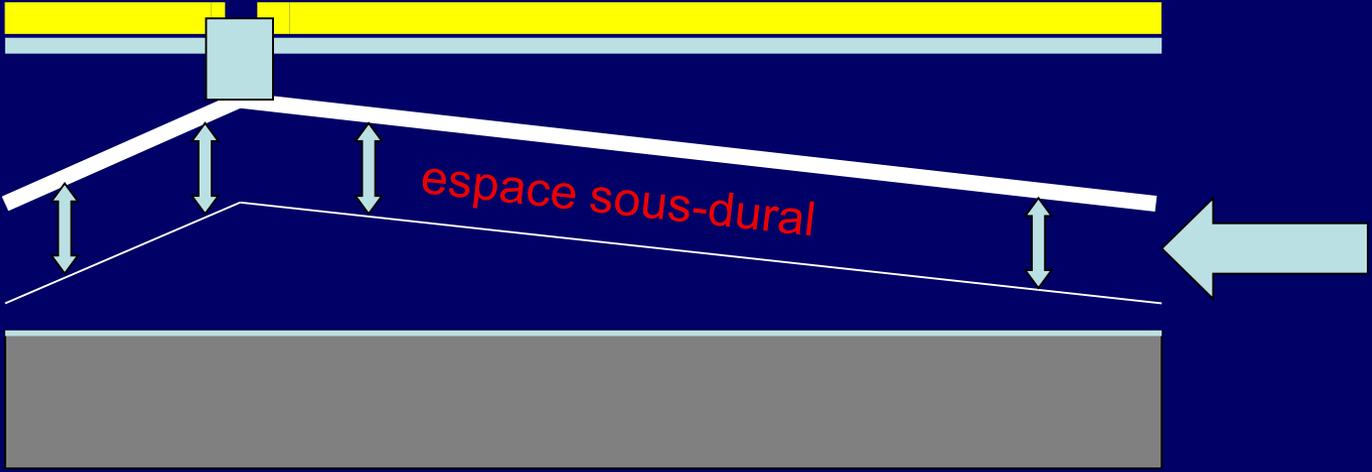
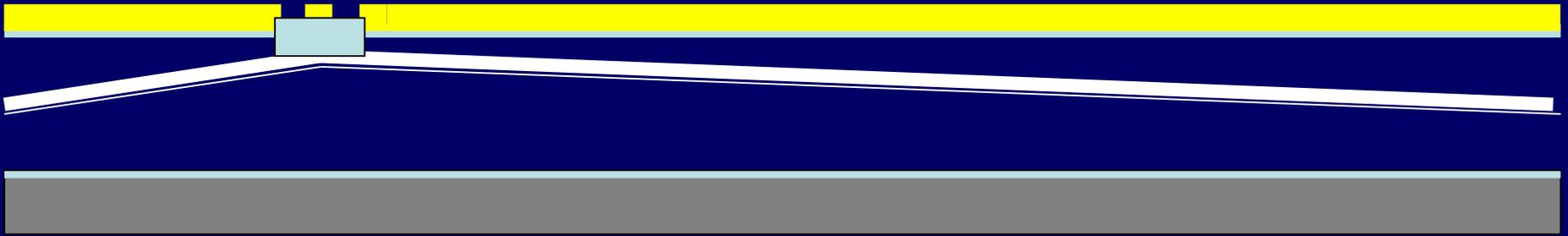
- Contusions directes
- Cisaillement

AR 27.02.2002



CT scanner crâne remboursé dans le cadre traumatique ssi:

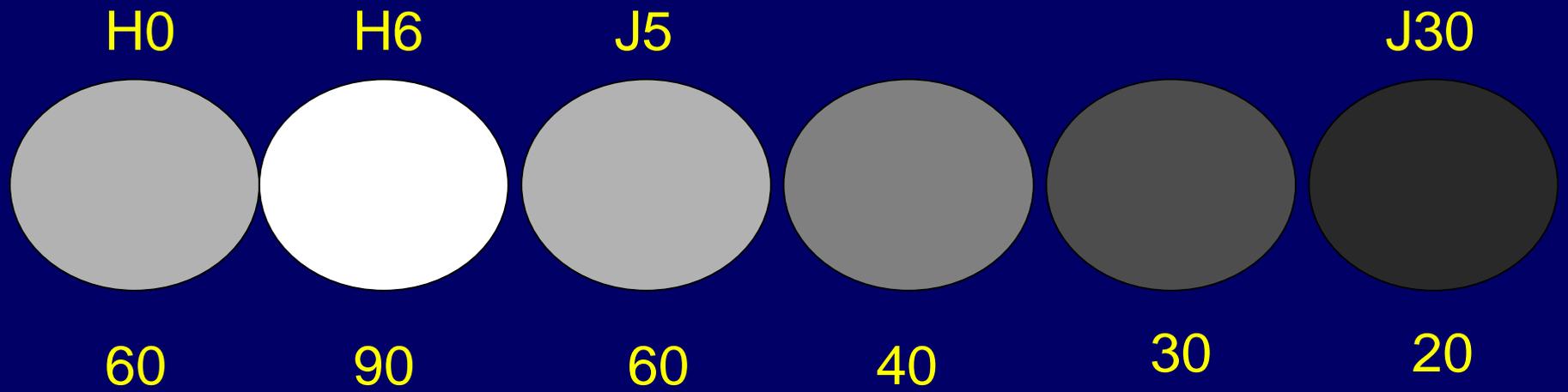
- Symptômes neurologiques focaux ou généralisés
- Lacération jusque sur l'os ou > 5 cms
- Anamnèse ou examen inadéquat (E, alcool, enfant, ...)
- Suspicion de lésion intentionnelle ou fontanelle bombante enfant < 5 ans
- Suspicion de CE ou plaie crânienne pénétrante
- Fracture du crâne en CR
- Perte de LCS par nez ou perte de sang ou LCS par oreille



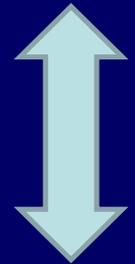
OS
périoste
DURE-MERE
Arachnoïde
pie-mère
parenchyme



Densité de l'hématome au CT scanner



Sang collecté



Sang non collecté

'Wash-out' par la circulation du LCR

Intra-parenchymateux

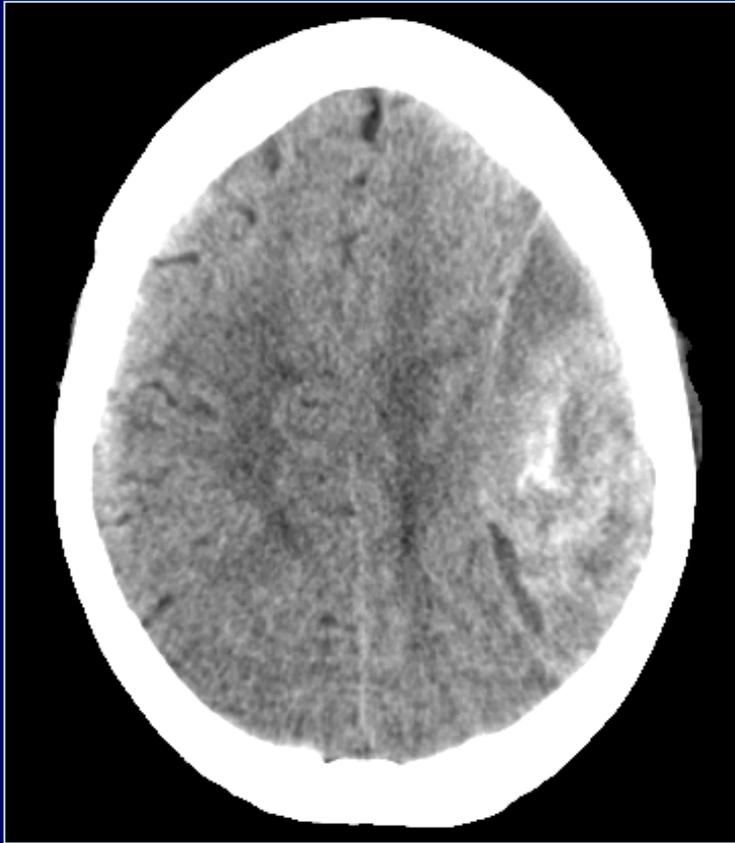
Péri-cérébral

Ventricules

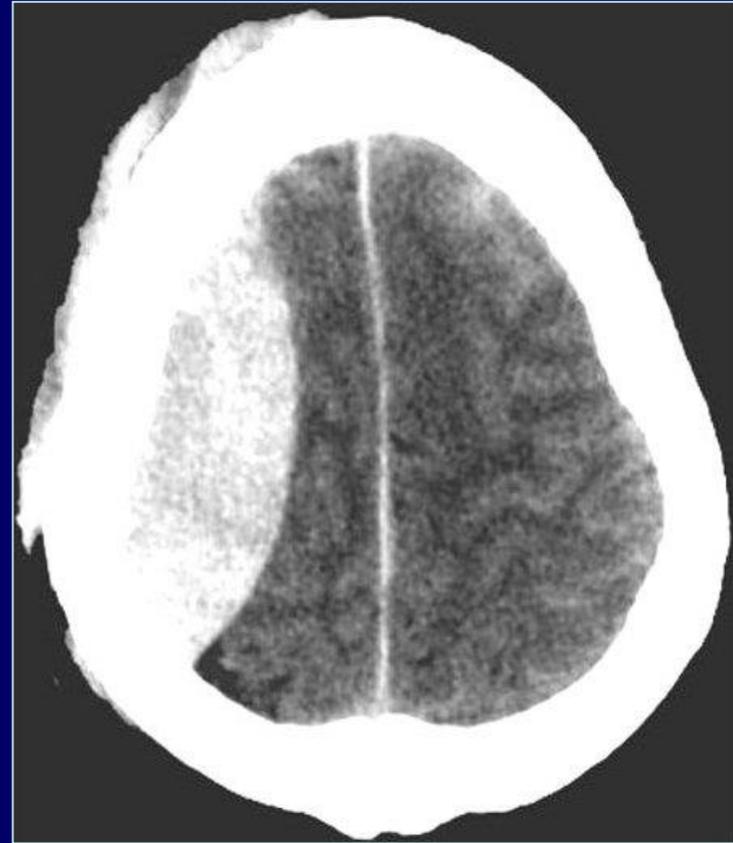
ESAs des convexités

Hématome Extra-Dural (HED)

hyperaigu



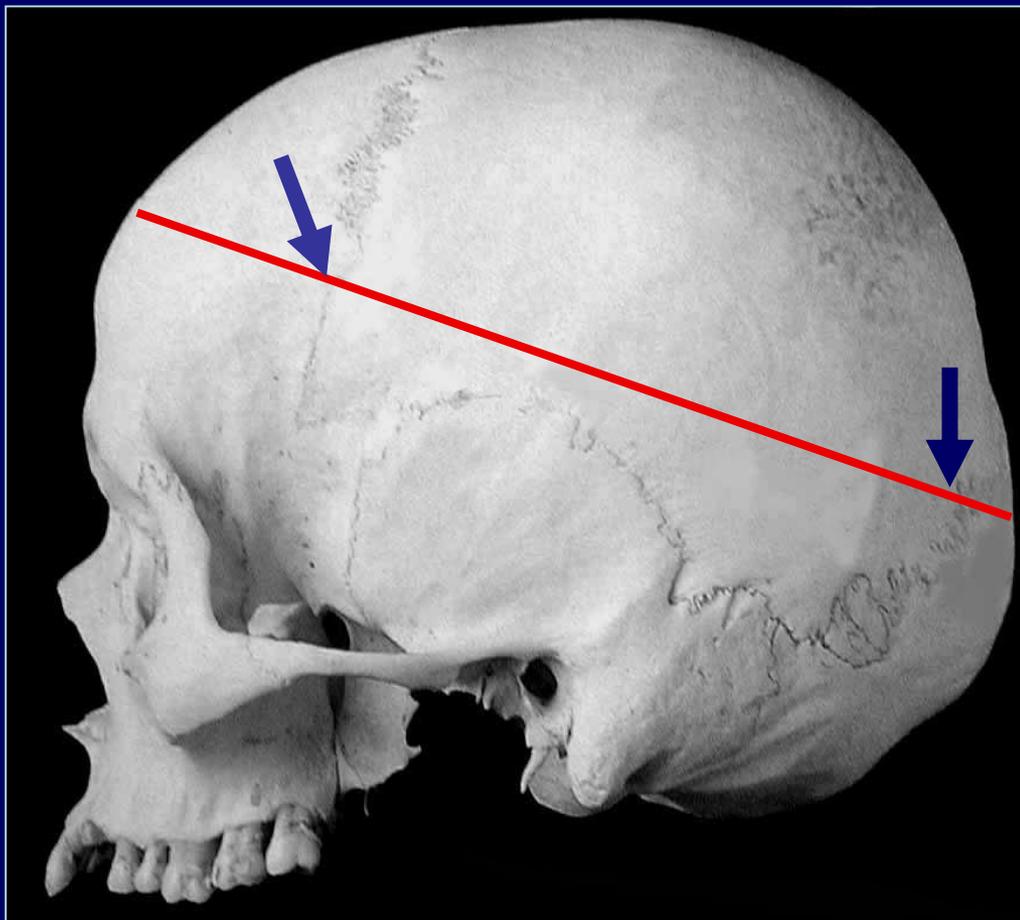
aigu



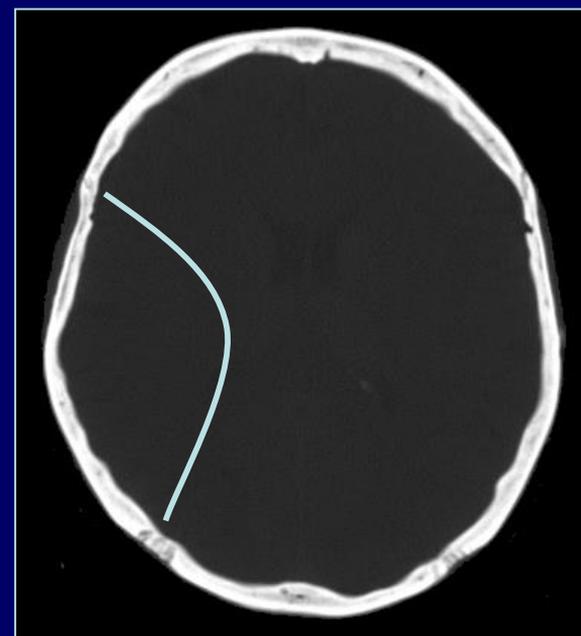
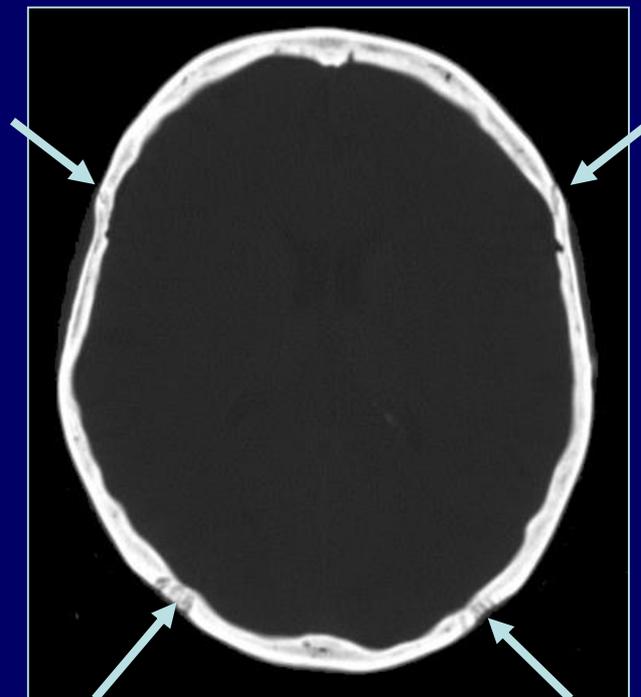
Saignement artériel → débit & pression → hétérogène

en phase aiguë

Arrêt par les sutures



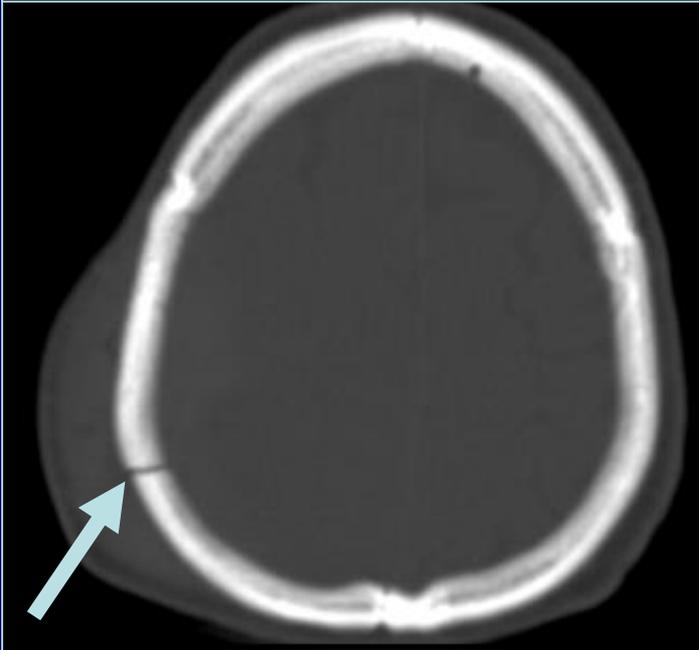
→ lentille bi-convexe



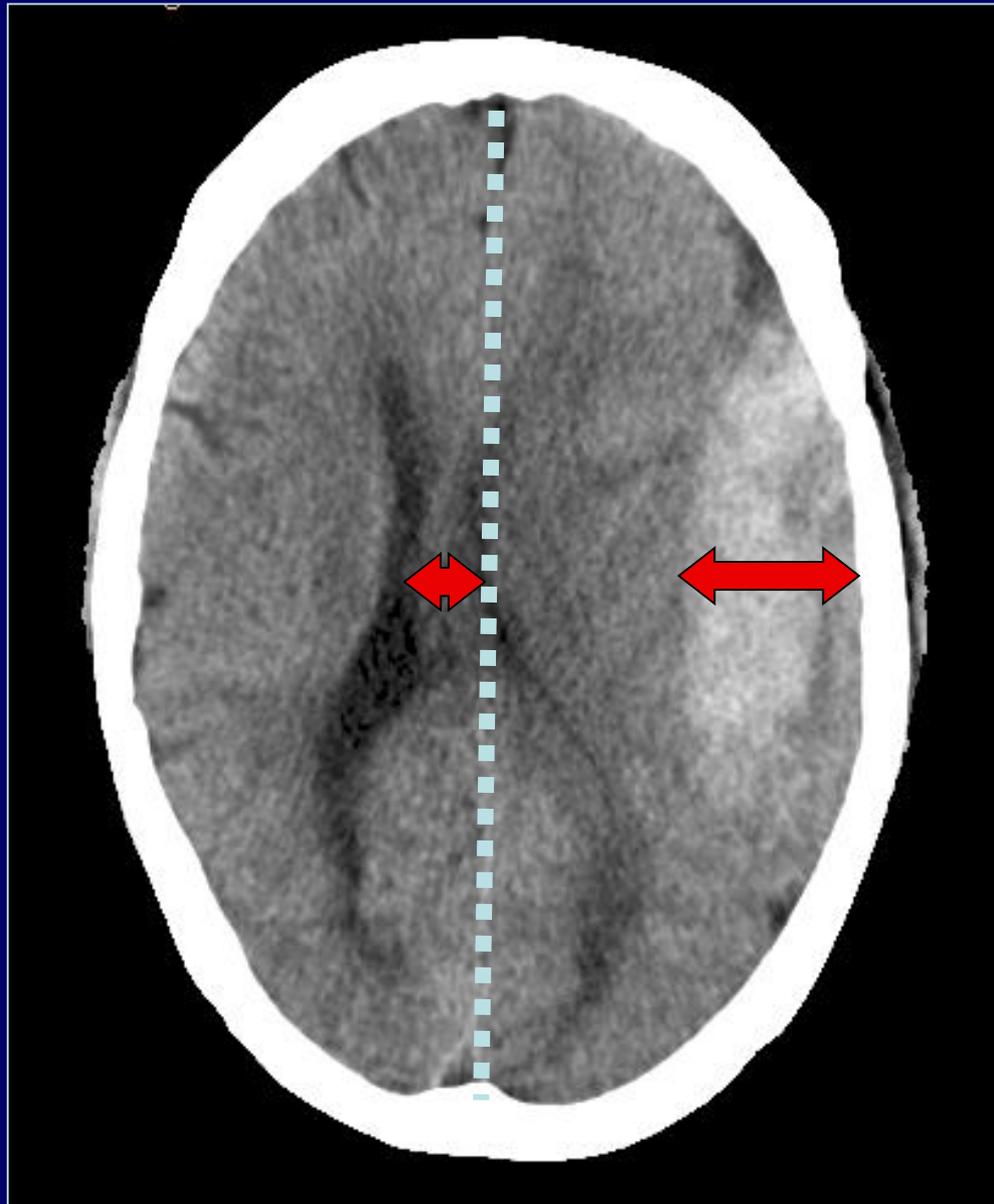
hétérogène



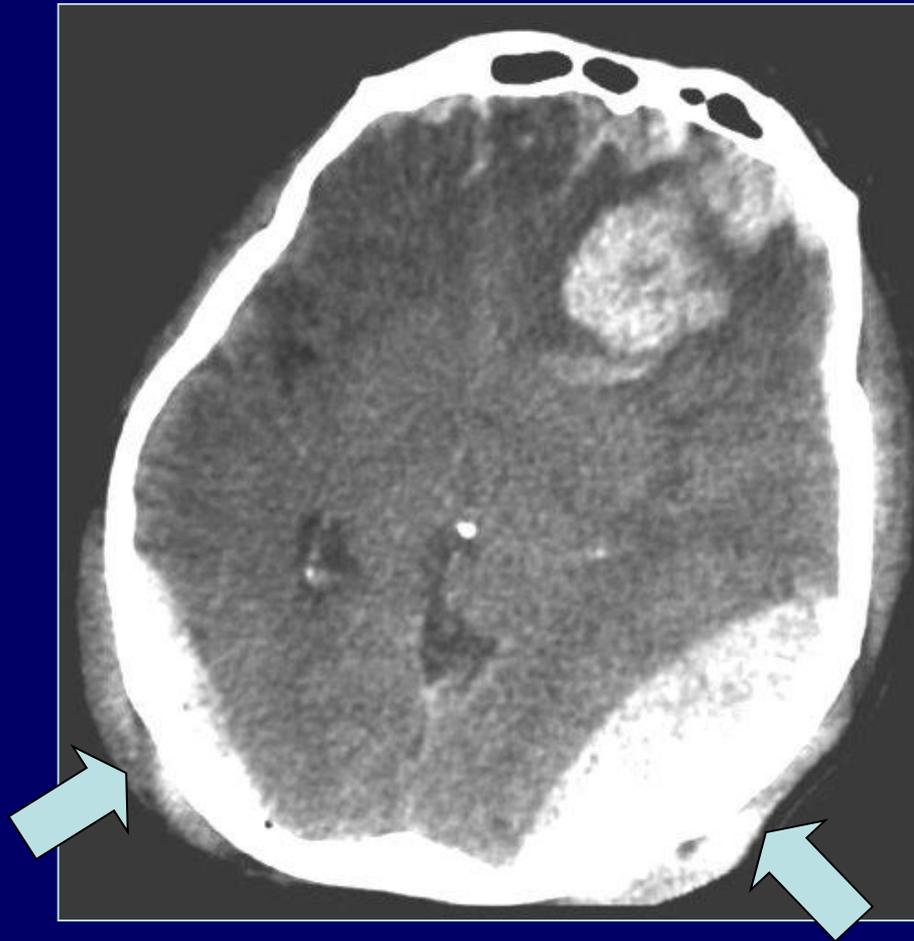
fracture



bulles d'air



Effet de masse spectaculaire *focalement*

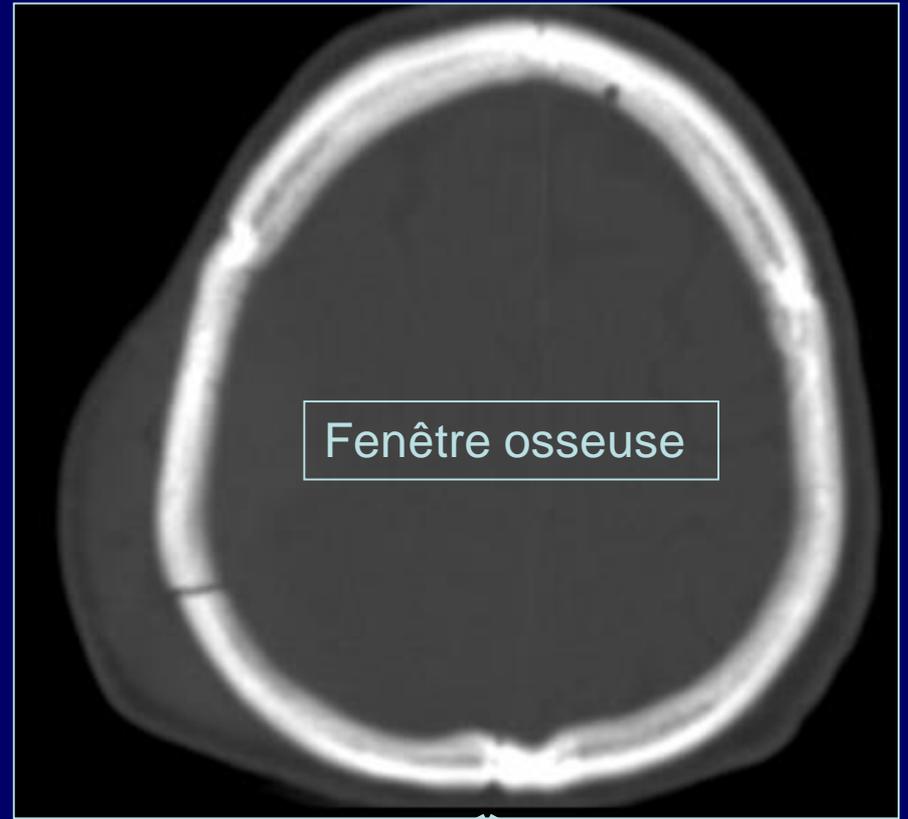
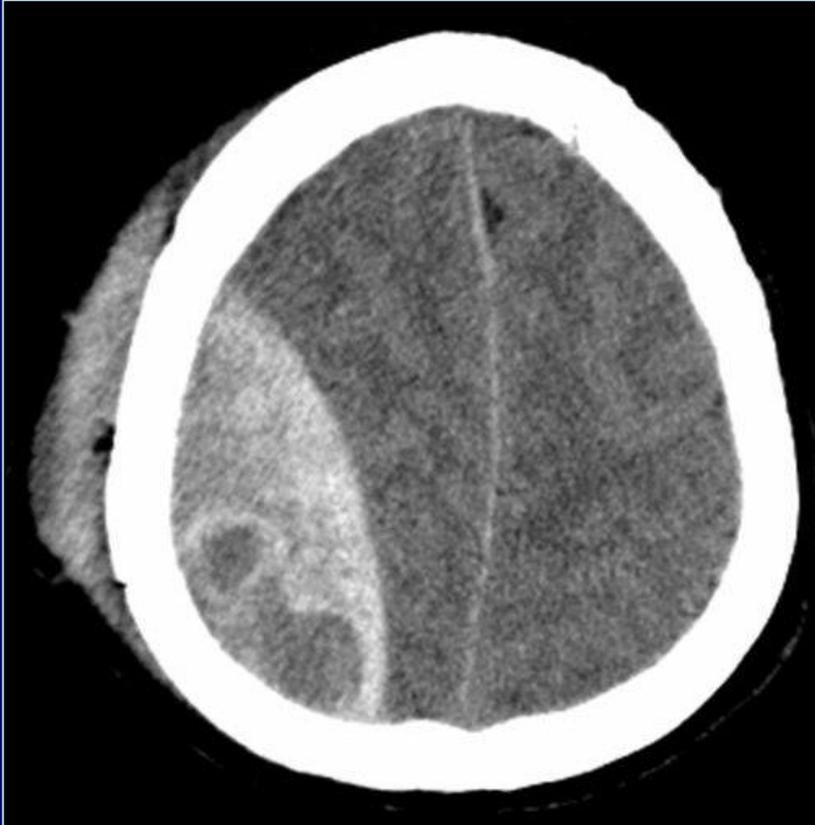


Peu fréquemment bilatéral
(sauf trauma majeur)



Isolé dans 1 à 2 cas sur 3
'Absorption de l'énergie cinétique vulnérante'

Tuyau ∞_{++}



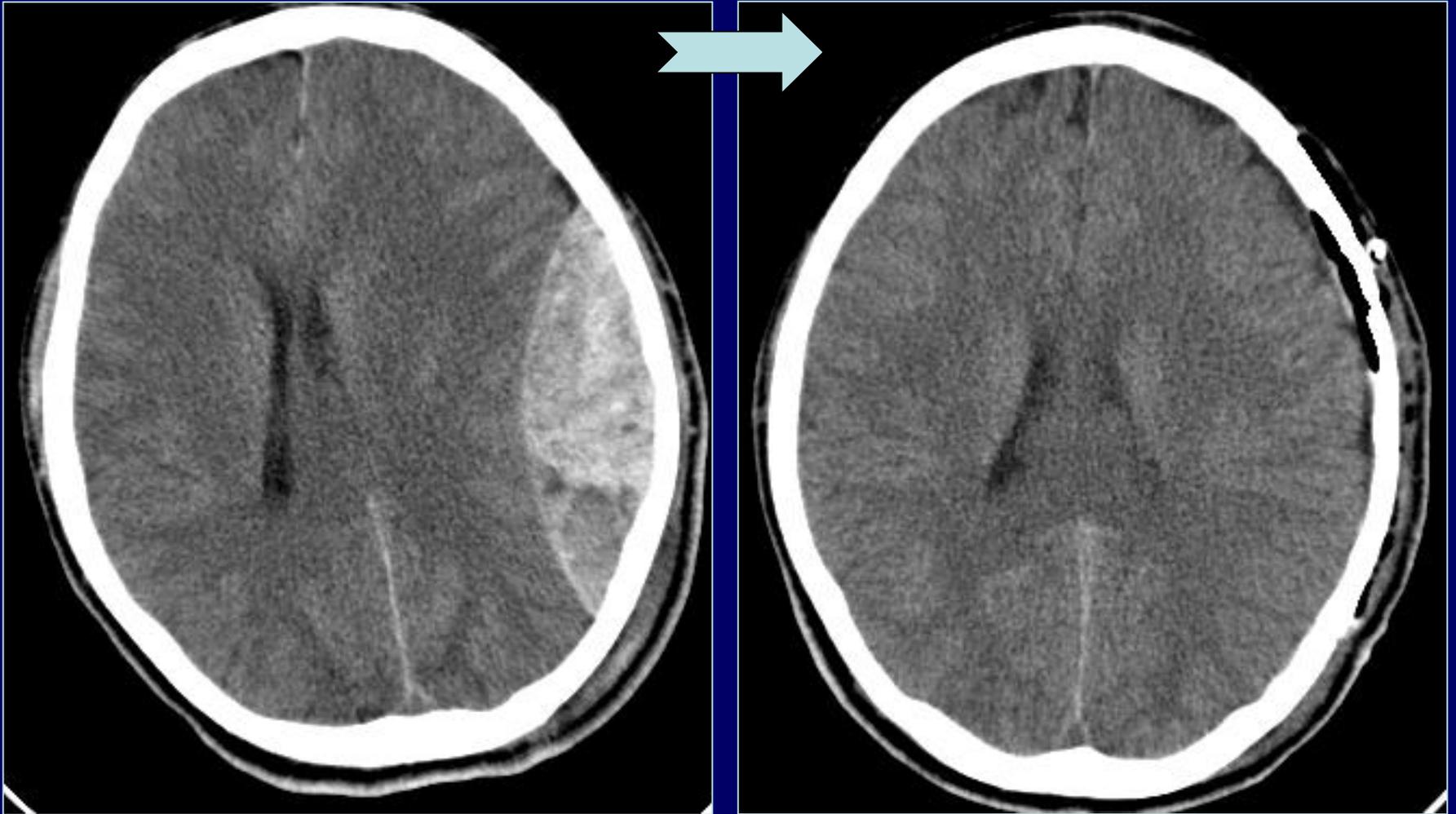
Lentille biconvexe
Hétérogénéité -> sang artériel
Homolatéral au 'coup'
Fracture -> rupture d'une artère méningée
Effet de masse spectaculaire mais focal

#

bulles

sutures

Traitement chirurgical...



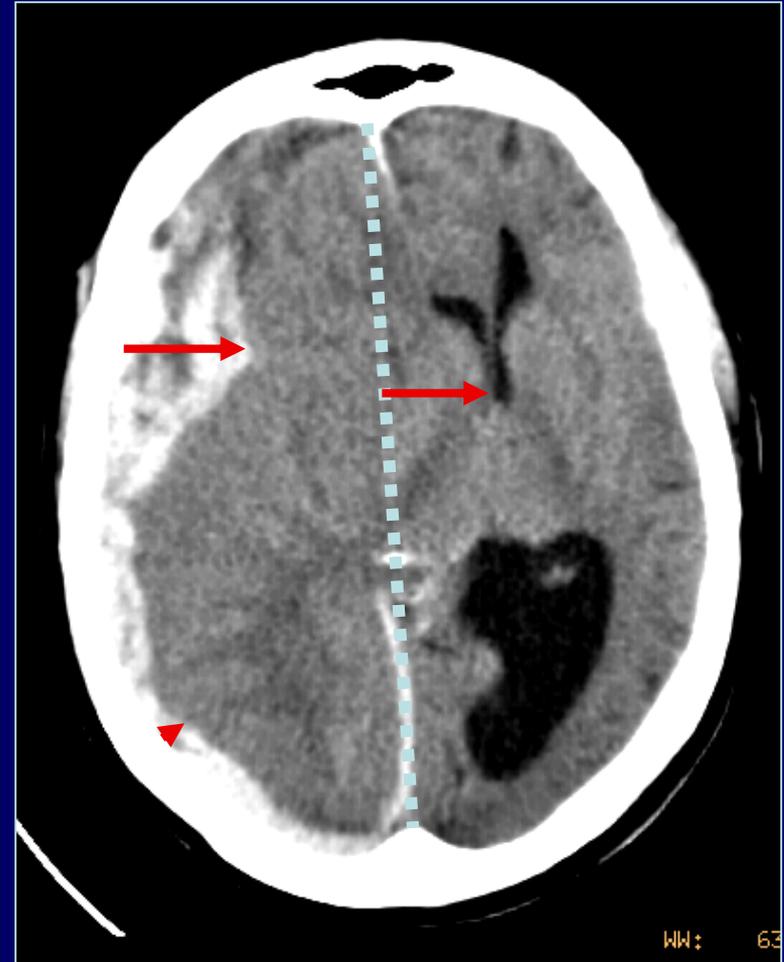
'Restitution complète'

Démarche conservatrice → HED 'bénin' contrairement au prurit du bistouri des périodes antérieures

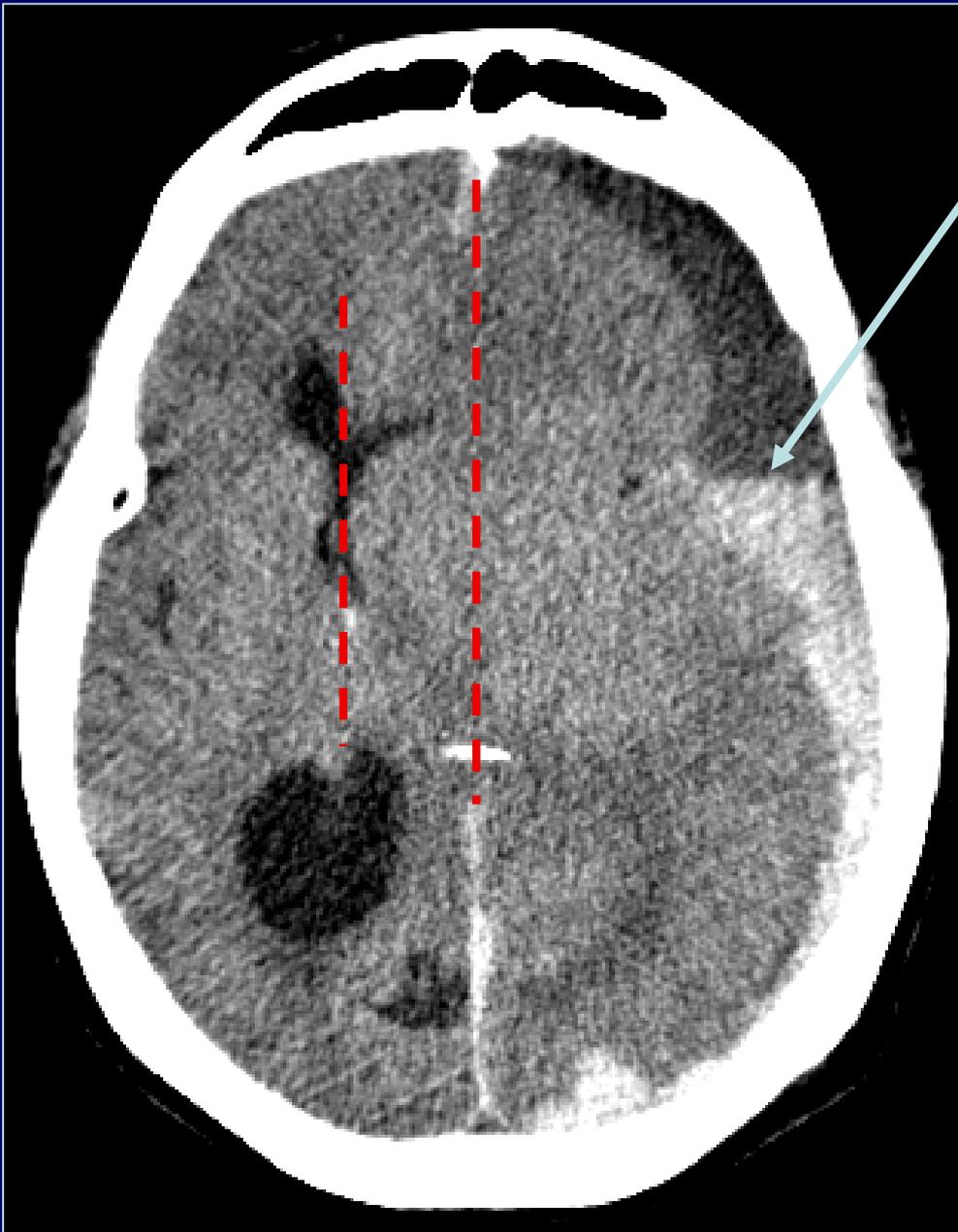
Hématome Sous-Dural (HSD)



'coup – contre-coup'
lésions associées



effet de masse
hors proportion

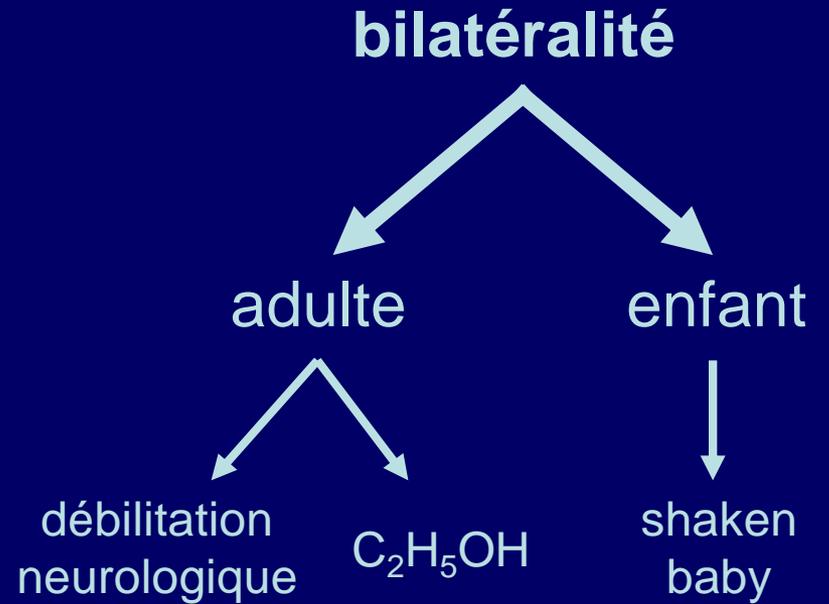
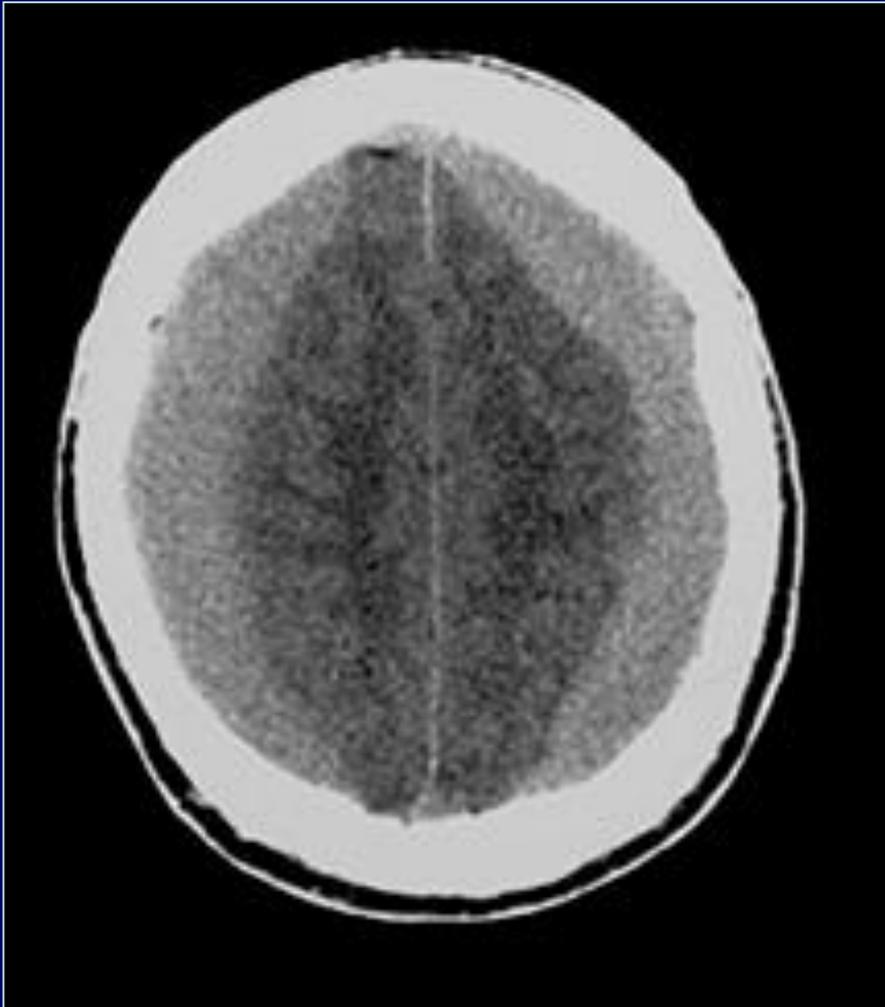


Niveau liquide/liquide

- culot sédimenté d'éléments figurés
- surnageant sérique
- DD :
 - saignement récent immobilisé
 - re-saignement

Tuyau ∞++

- contre-coup ->
- rupture des veines-pont ->
- saignement veineux ->
- 'intervalle libre' clinique
- déplacement hors proportion ->
- engagements

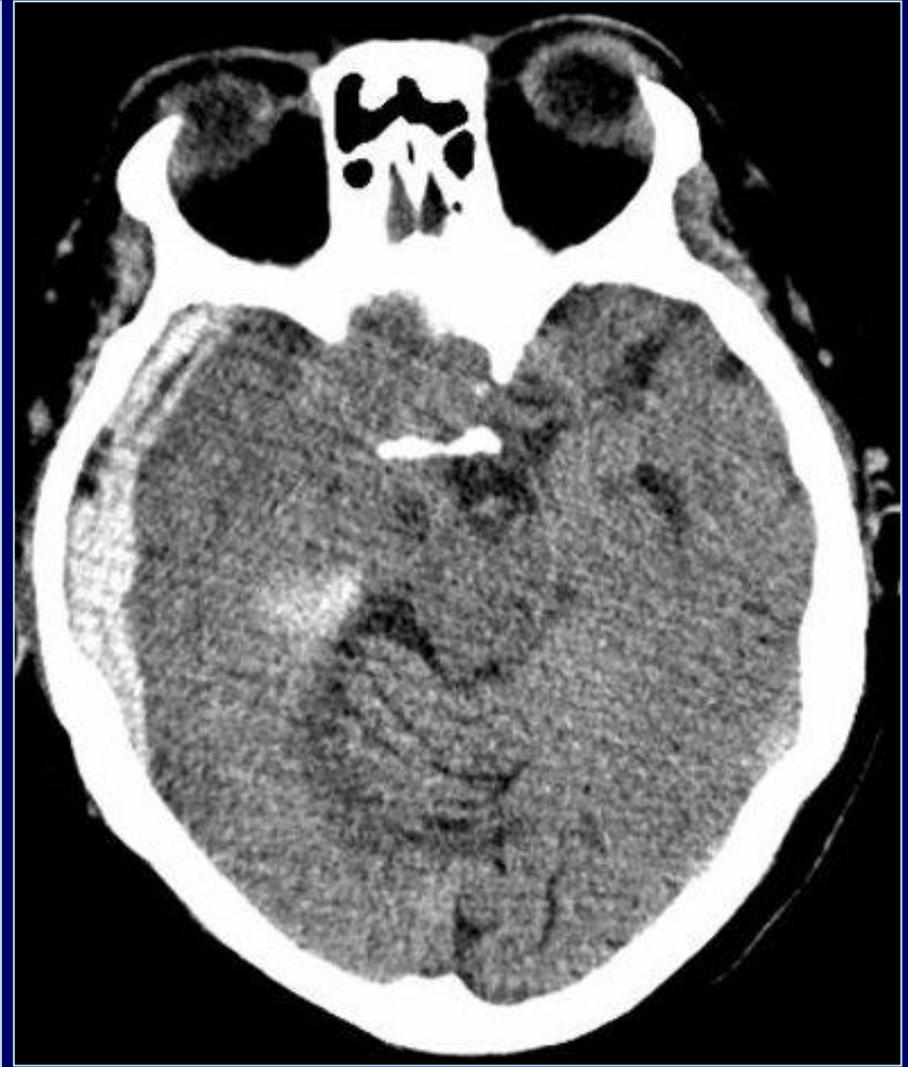


Bilatéralité
→
réduction du shift de ligne médiane
majoration +++ de l'HTIC !

Piège 1: cloisonnement



Faux HED...

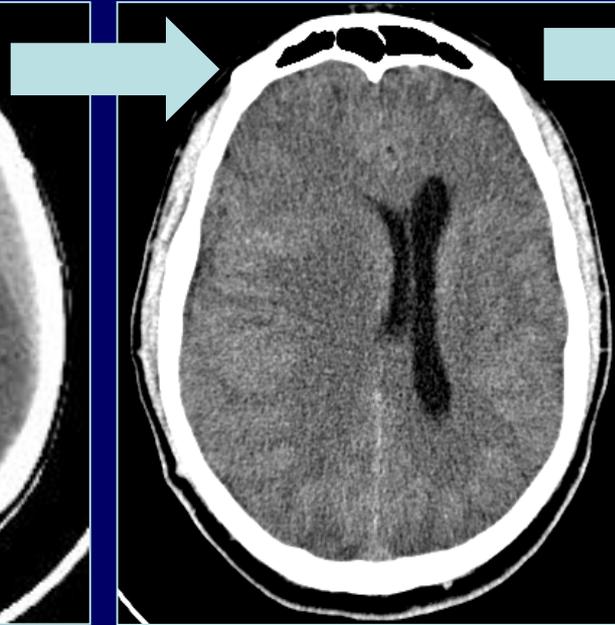


... vrai HSD

Piège 2: isodensité



hyper



iso



hypo

'Hygromes' ?

Plus haut et fenêtrage plus serré

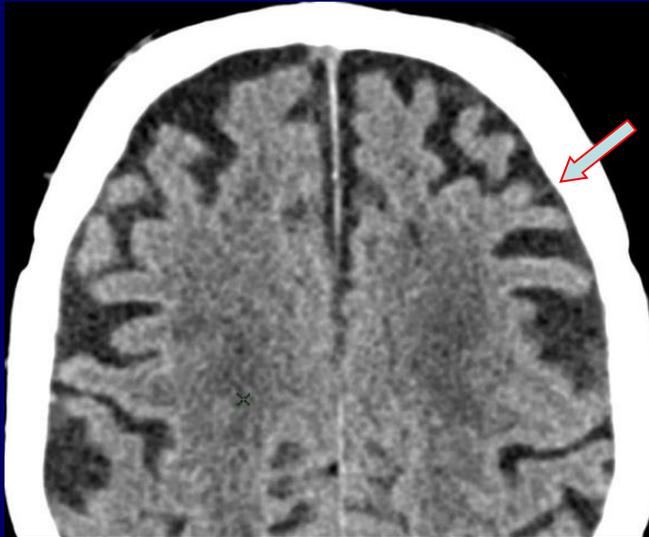


Effet de masse 'sans masse'...

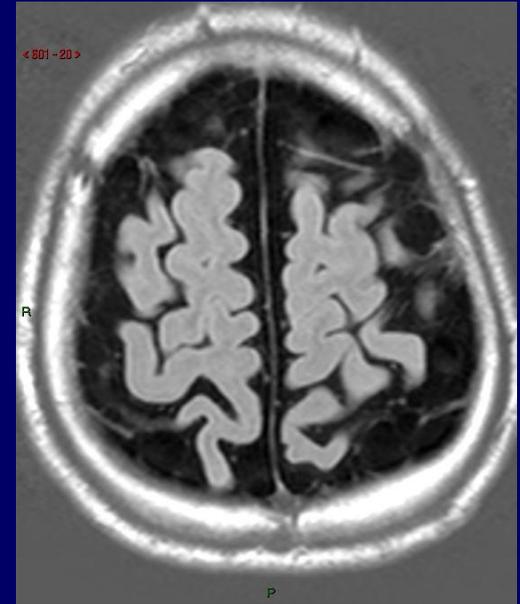


... mais avec collection péri-cérébrale

Piège 3: 'décollement' A VACUO



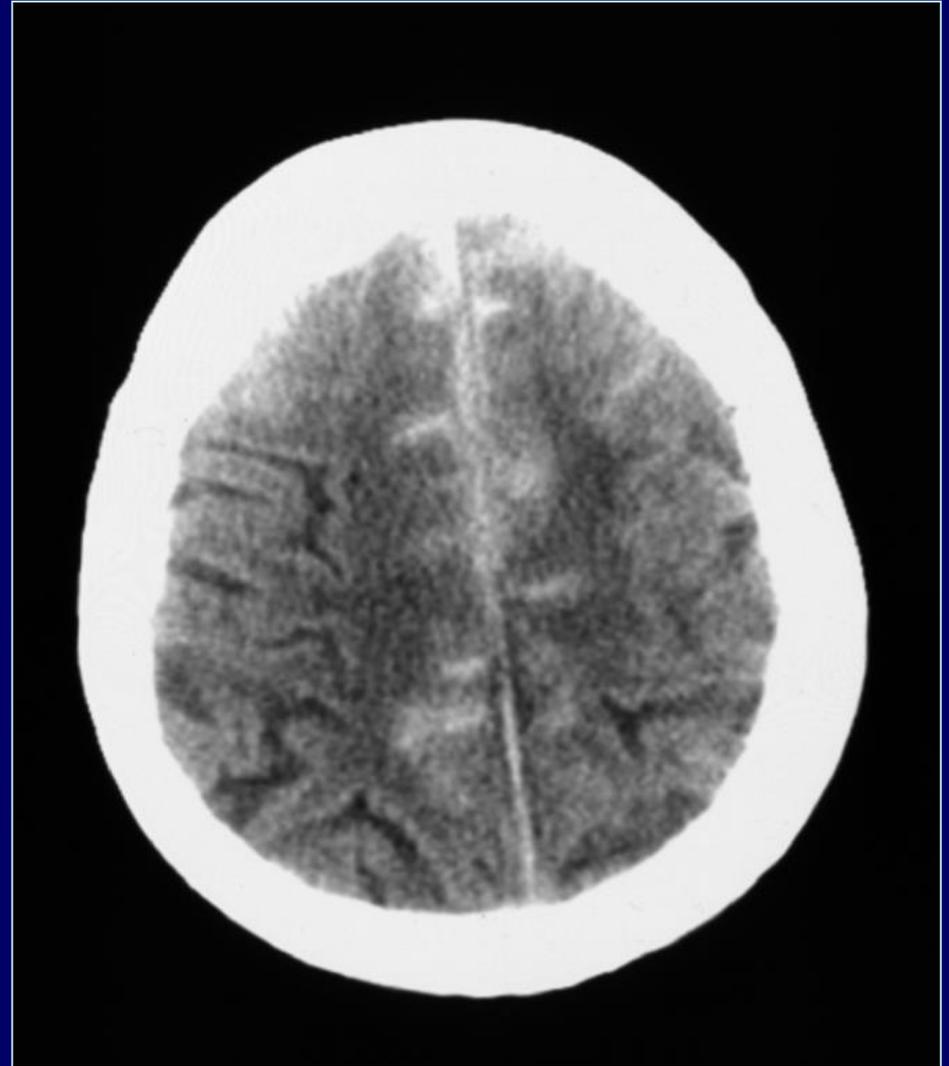
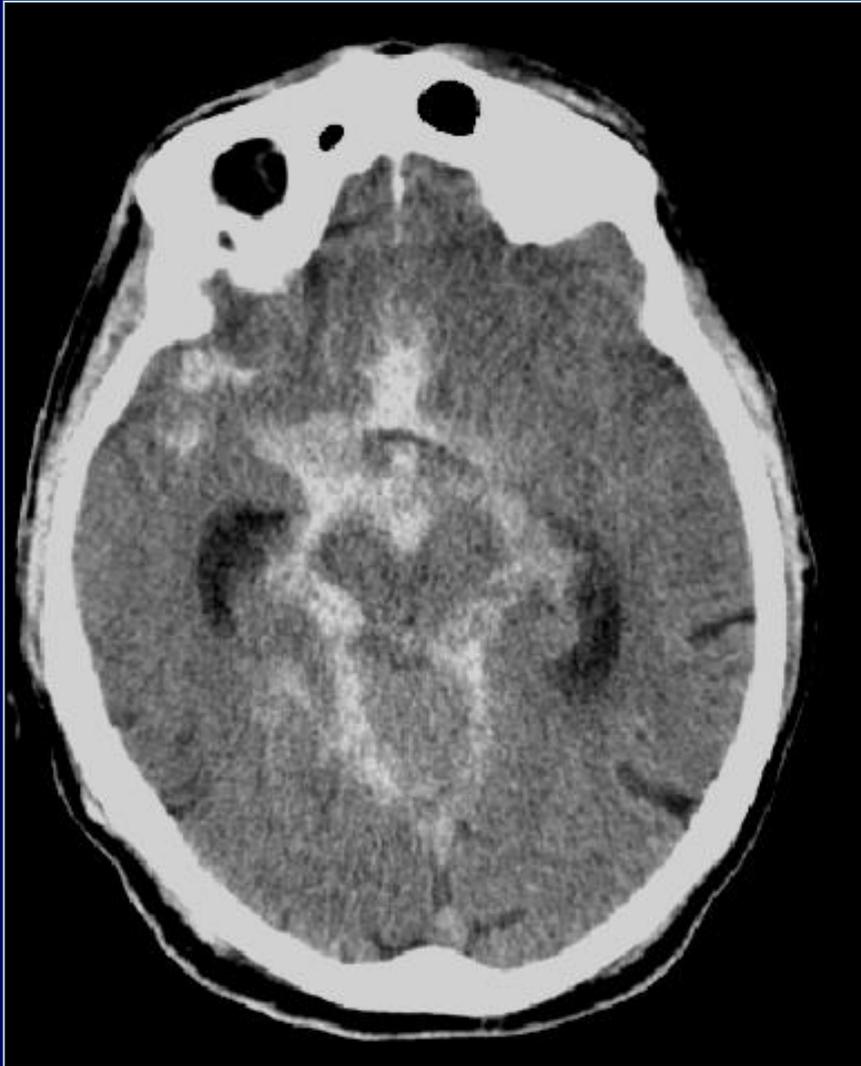
veines-pont



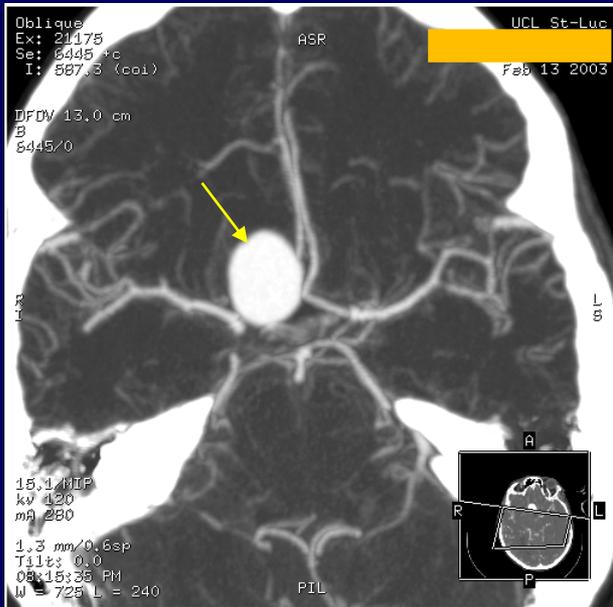
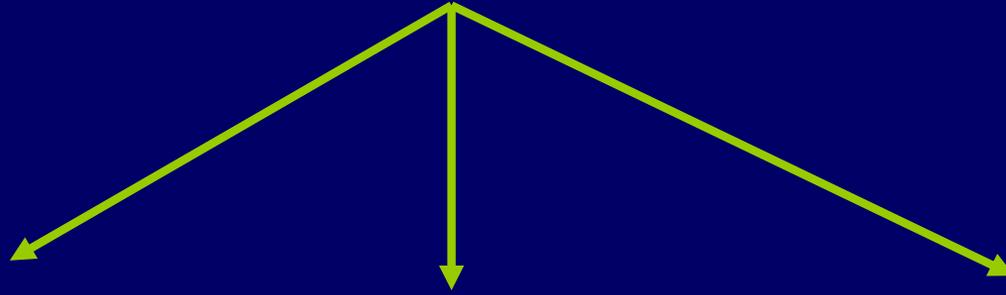
Effacement des sillons



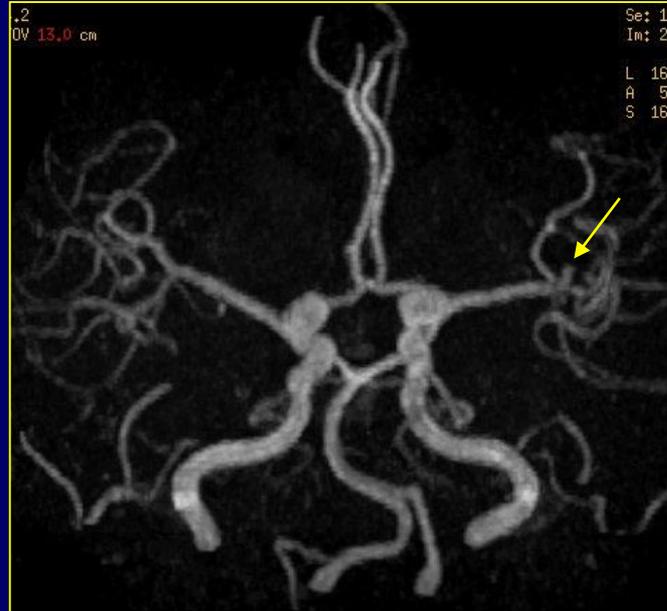
Hémorragie Sous-Arachnoïdienne (HSA)



Localisation de l'anévrisme causal



Angio-CT

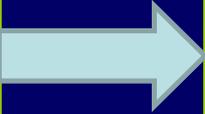


Angio-IRM

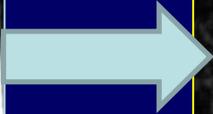
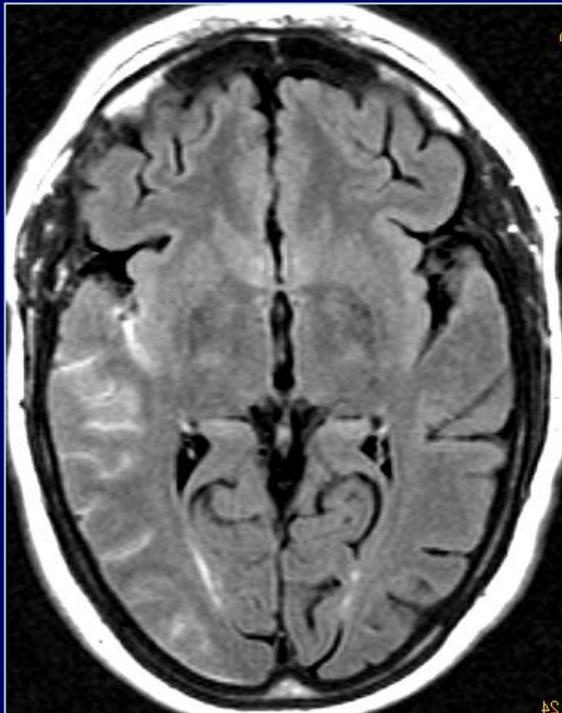


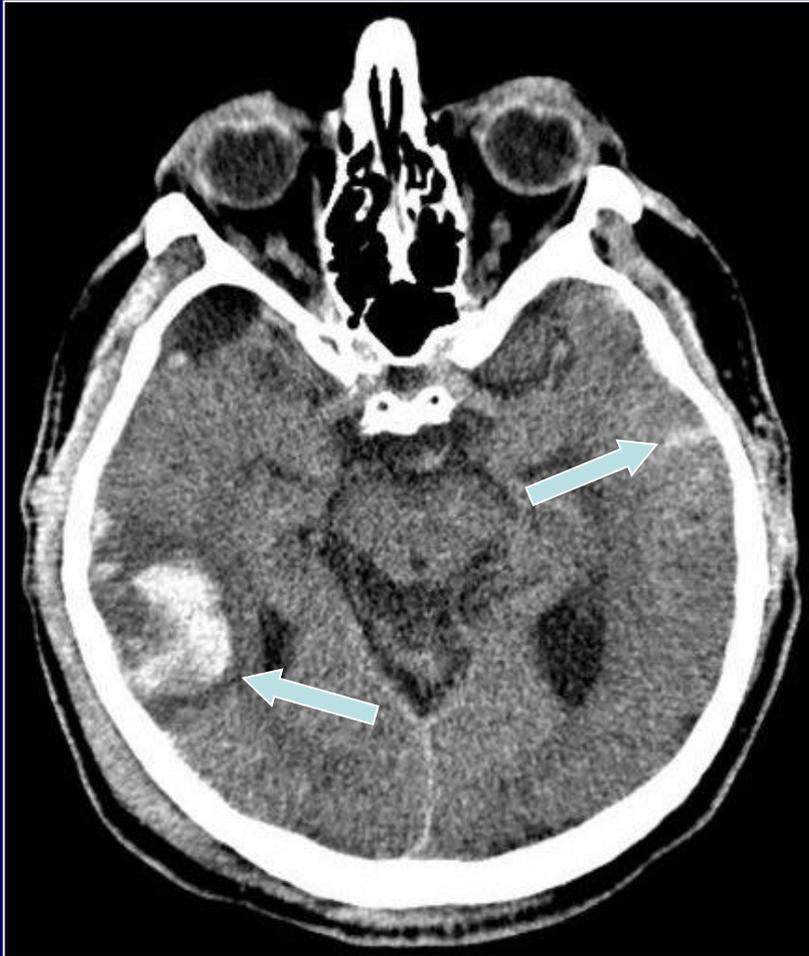
Angiographie DSA

CTA



MRA





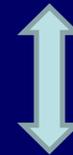
**associations
lésionnelles
fréquentes**



*pas l'élément clinique à l'avant-plan
en traumatologie crânienne*

Qui est le premier de la poule ou de l'œuf ?

HSA princeps et trauma secondaire



Trauma princeps et HSA secondaire

Lésions traumatiques parenchymateuses (I)

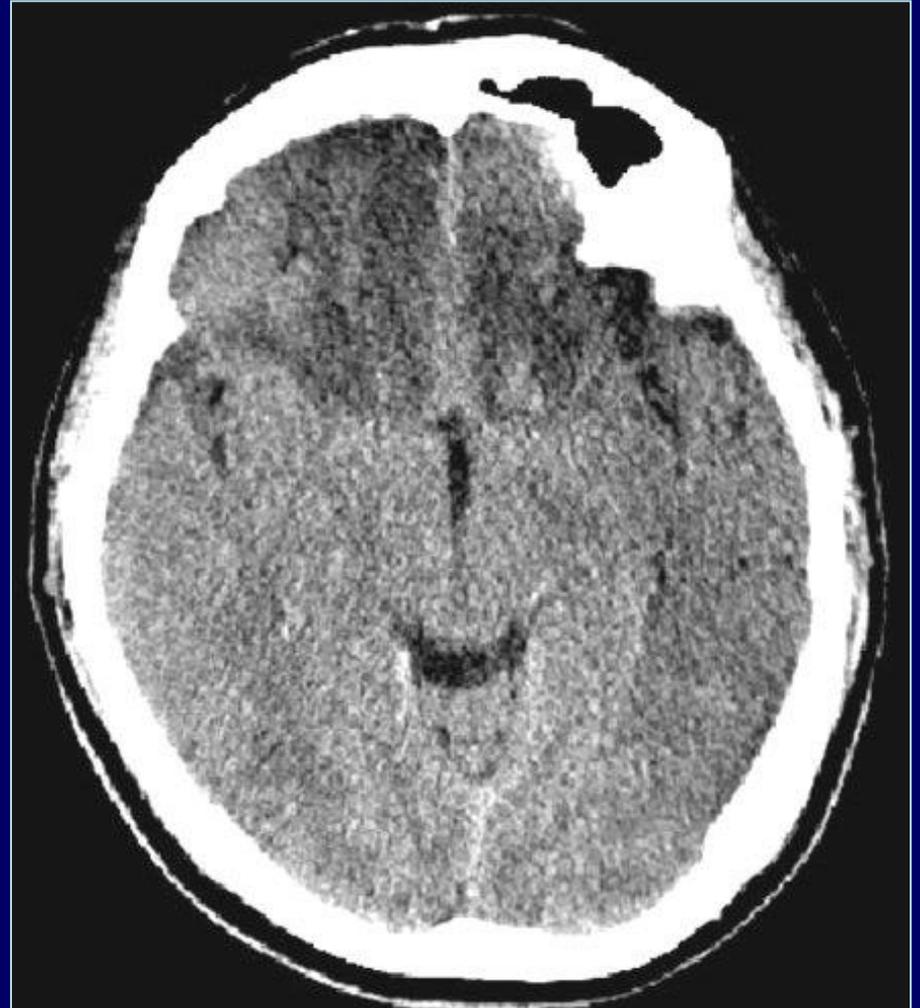


Foyers contusionnels directs **hypodenses** : contusions non (encore) hémorragiques
Hématomes intra-parenchymateux **hyperdenses** : contusions hémorragiques collectées

Phase aiguë...



... chronique

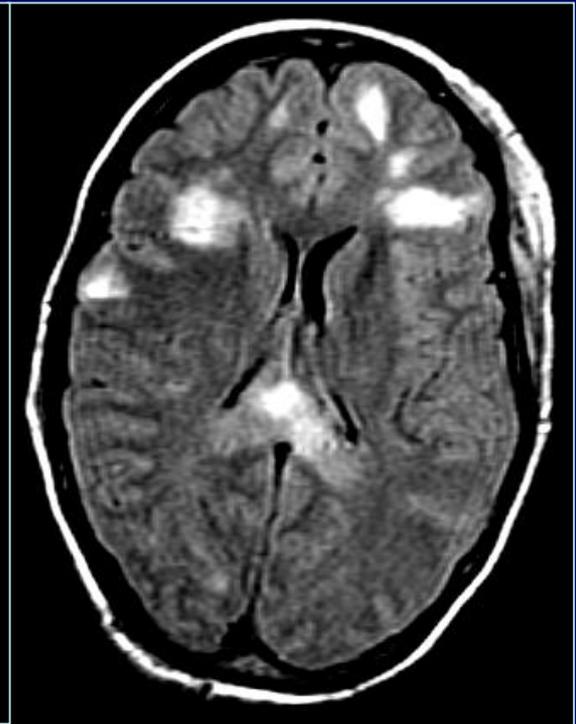


Topographie de contre-coup

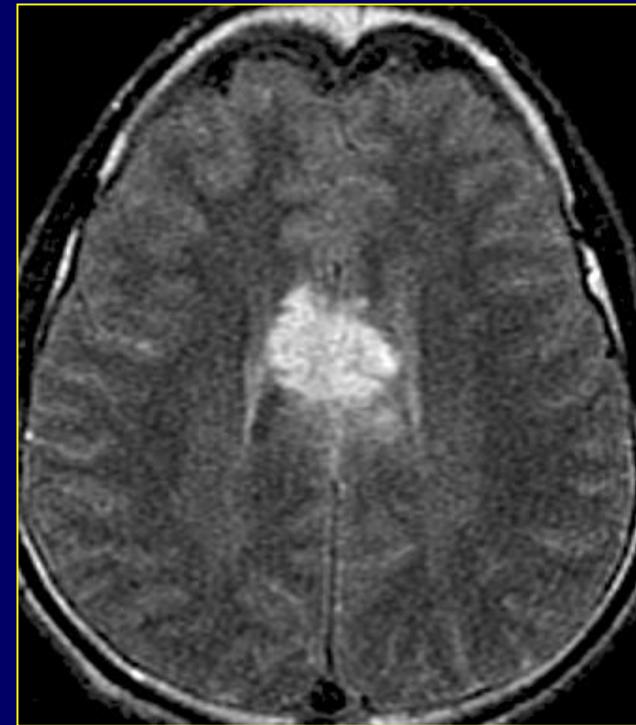
- bi-basi-frontal
- bi-temporal polaire antérieur

Lésions traumatiques parenchymateuses (2)

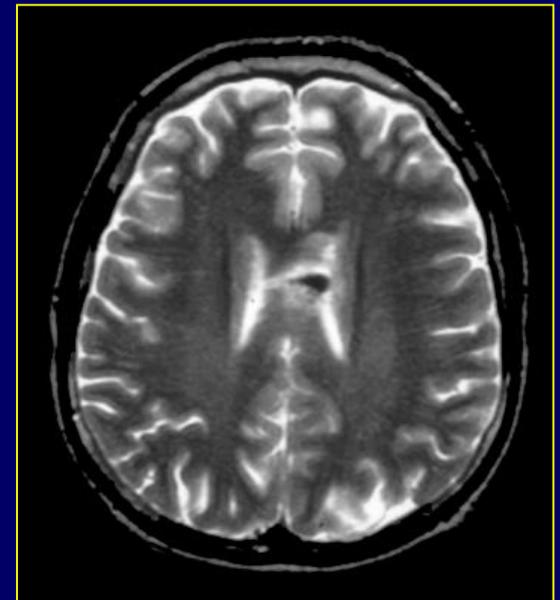
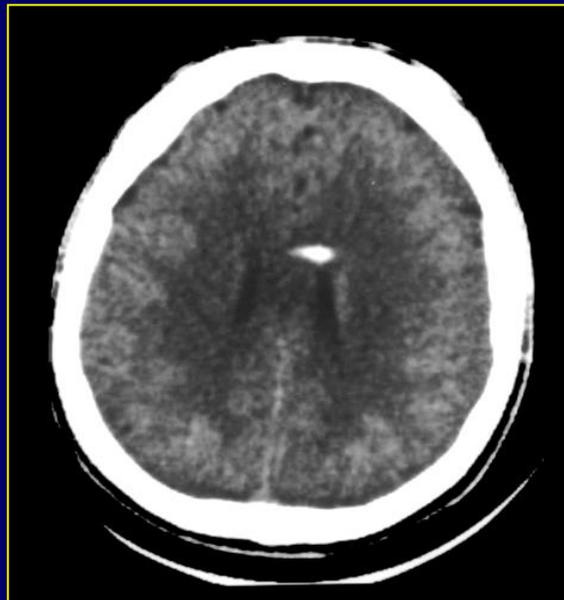
Lésions en cisaillement



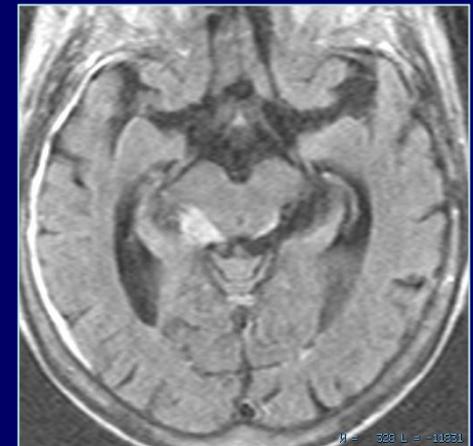
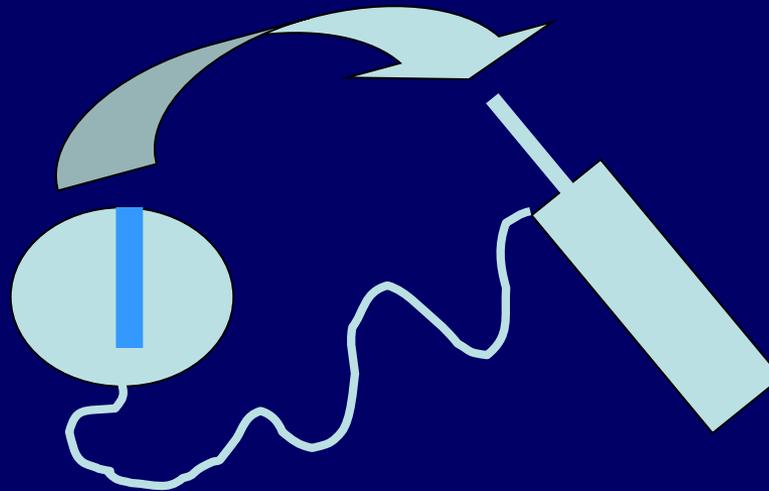
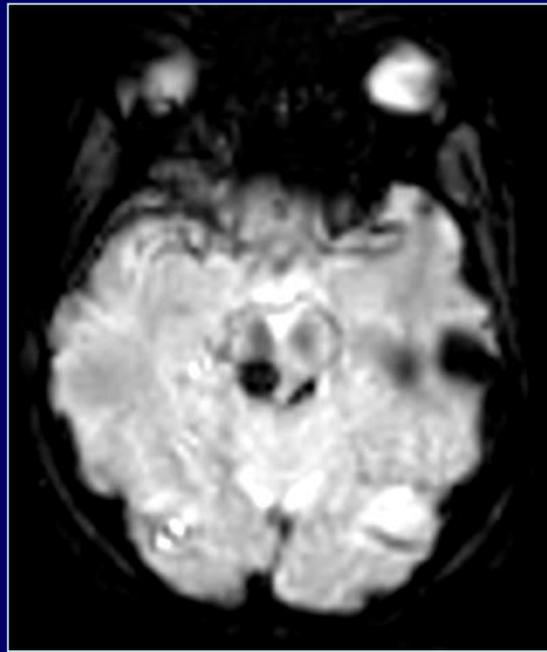
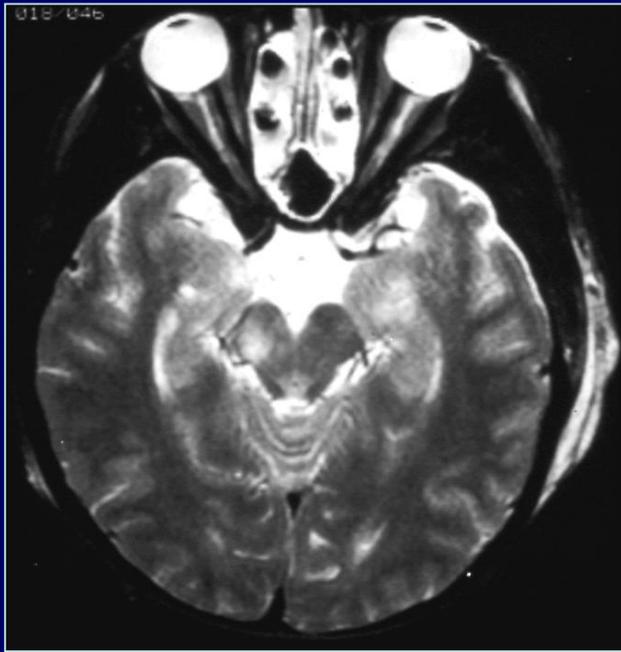
'déchirures axonales'



'déchirure'
du corps calleux



'torsion' du mésencéphale



F 32ans

Chute de cheval

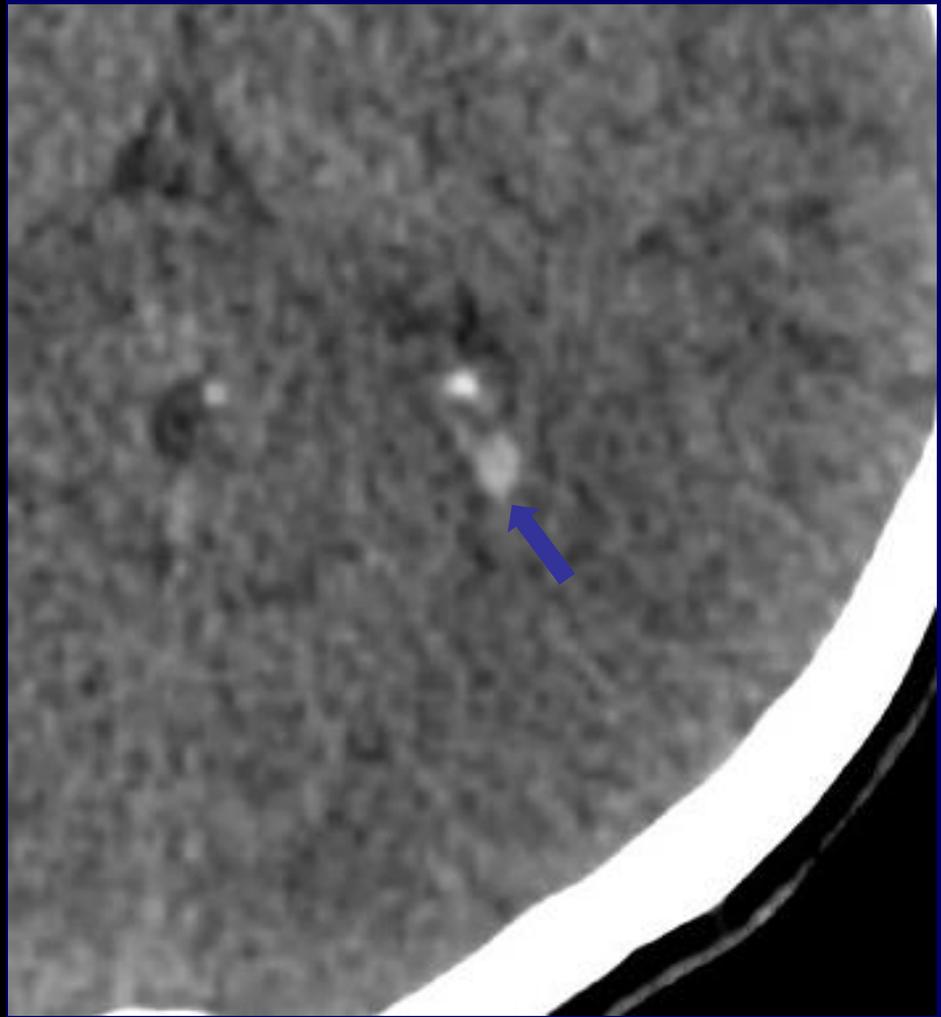
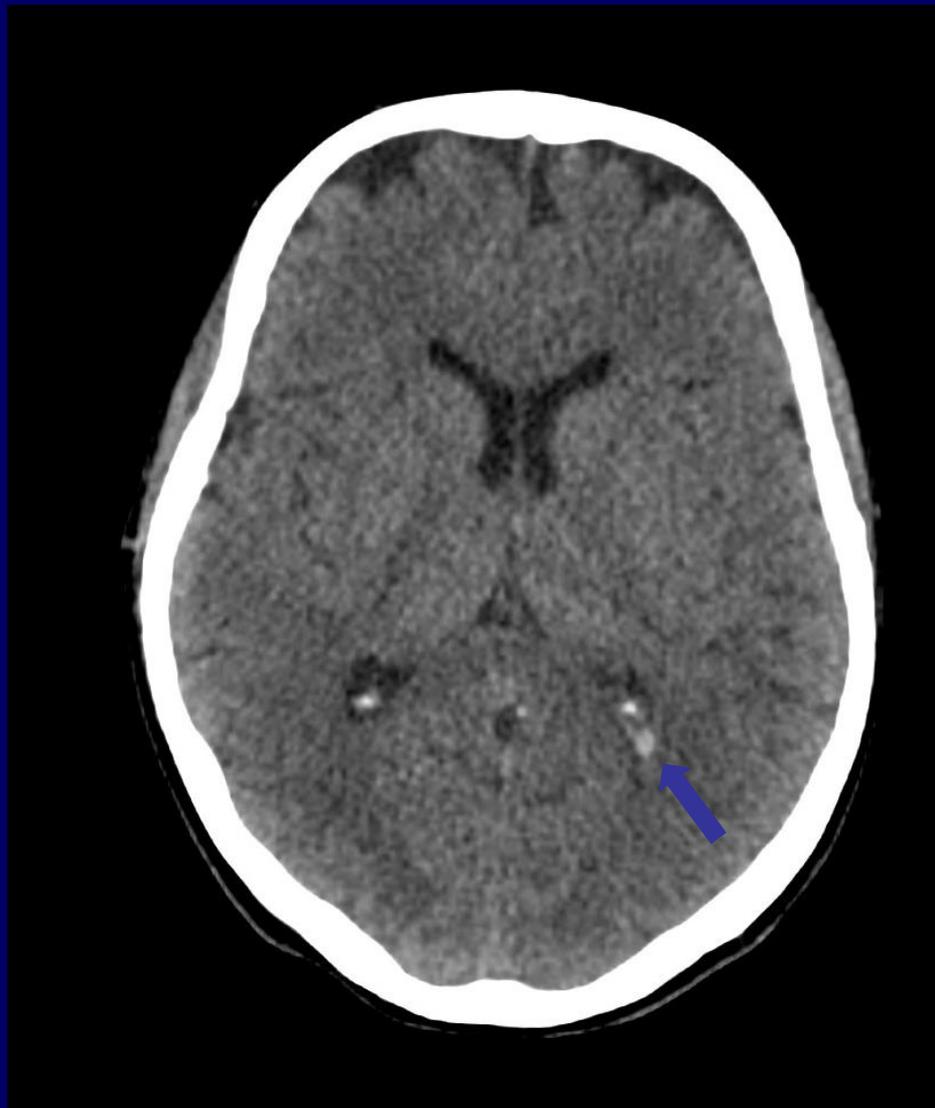
Trauma crânien

GCS 10/15

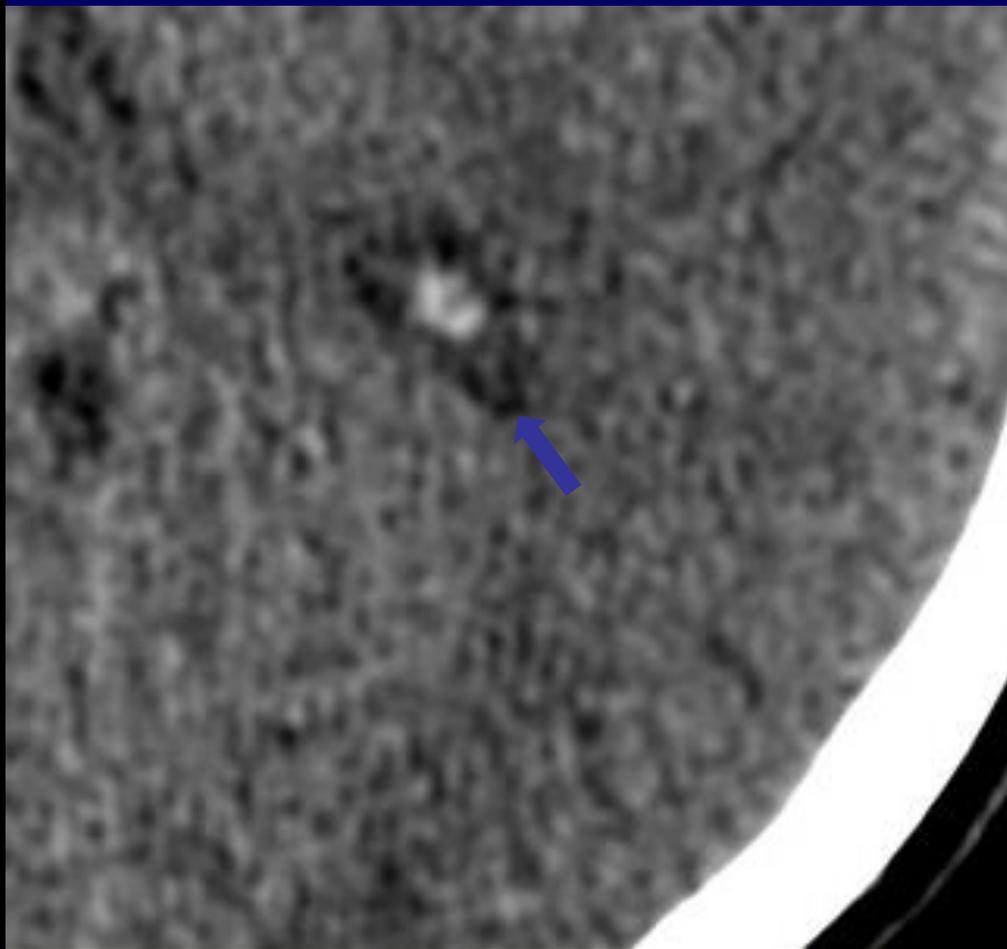
Mydriase bilatérale aréactive.

Anisocorie G>D

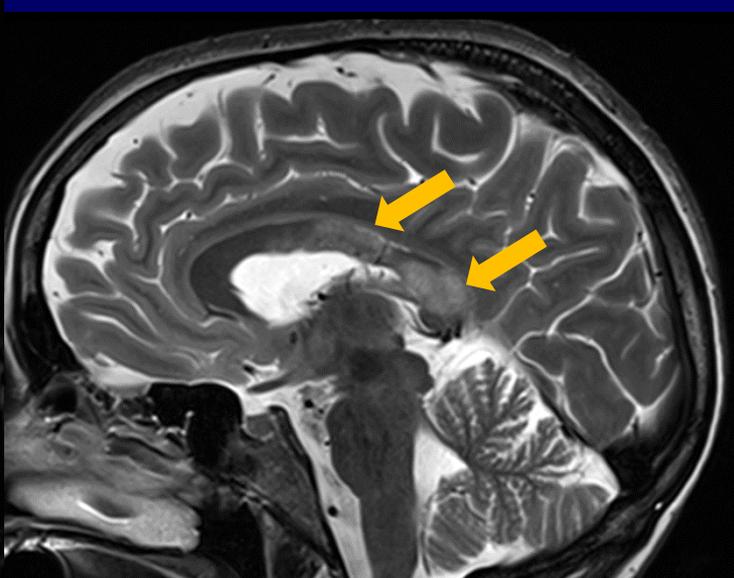
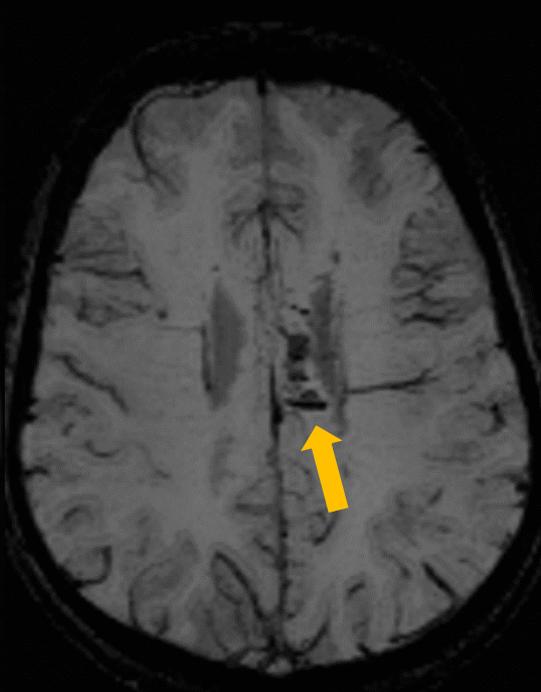
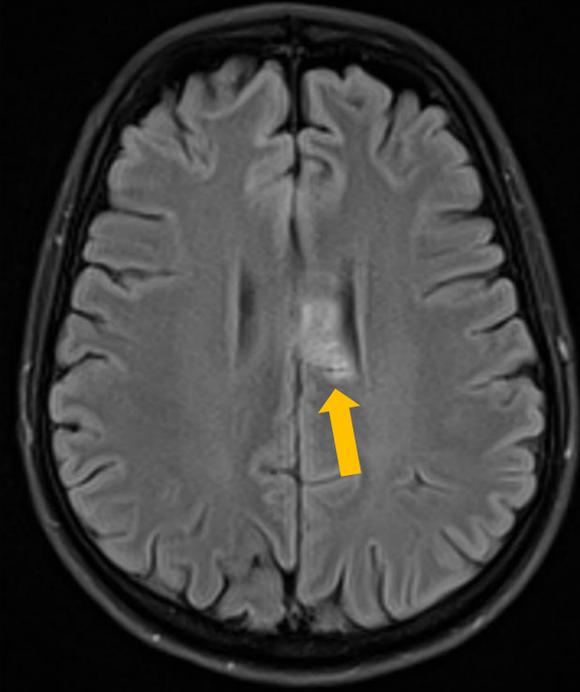




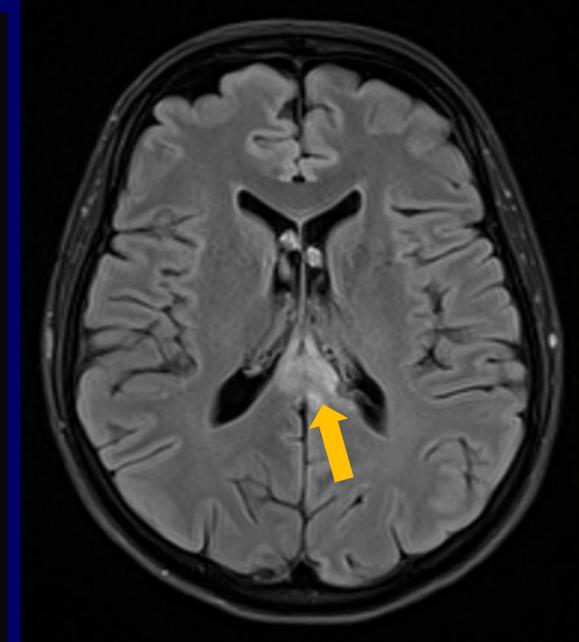
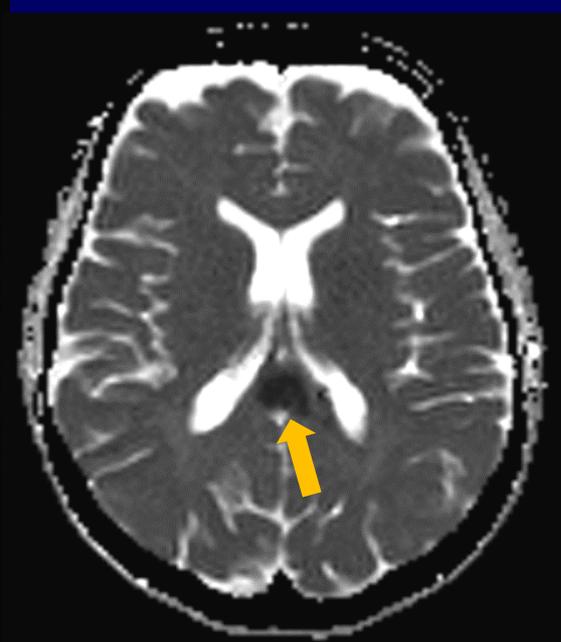
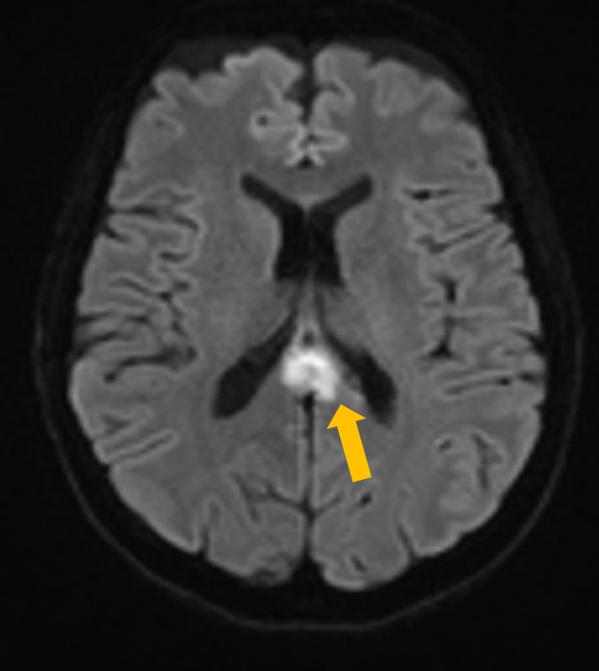
CT J0

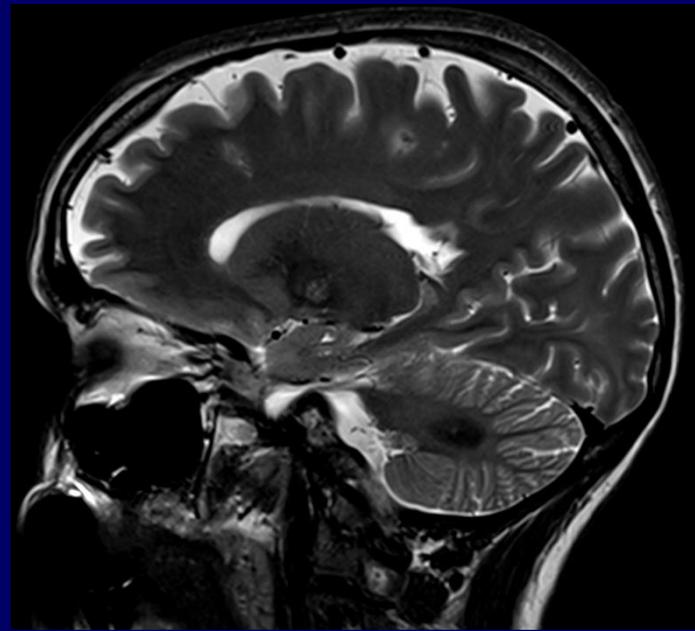
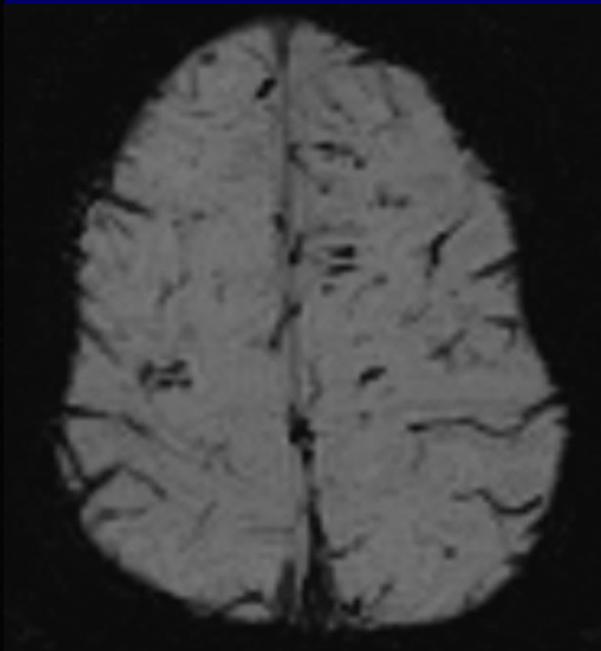
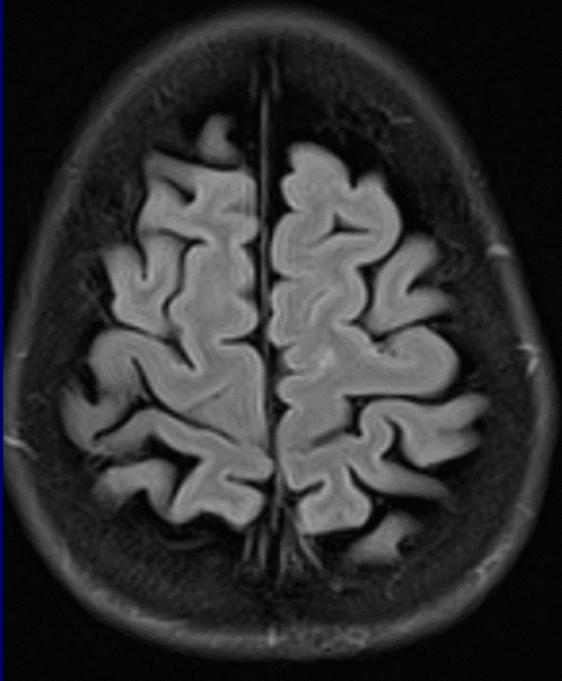
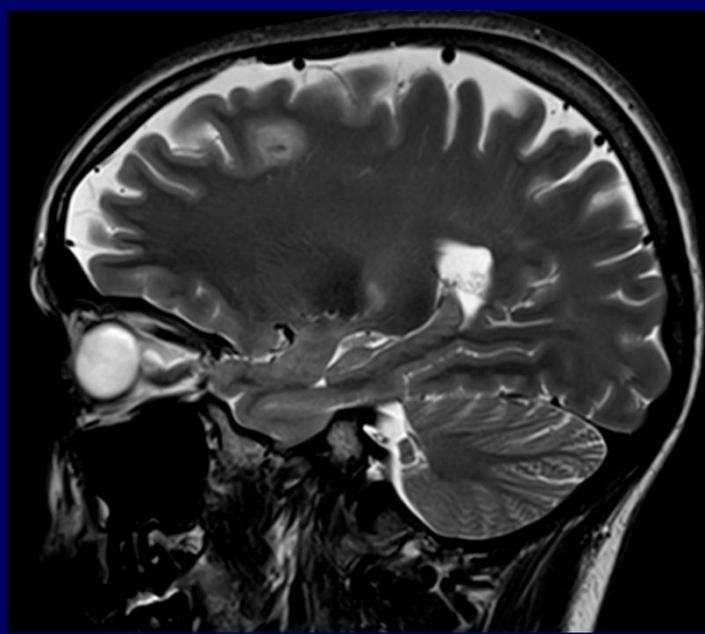
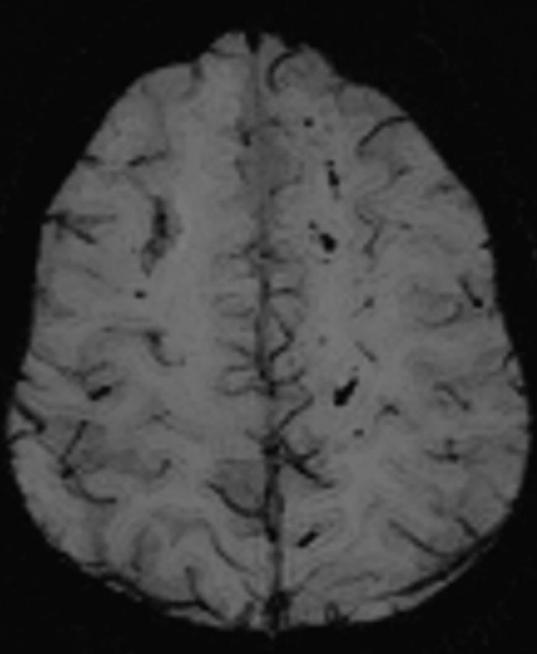
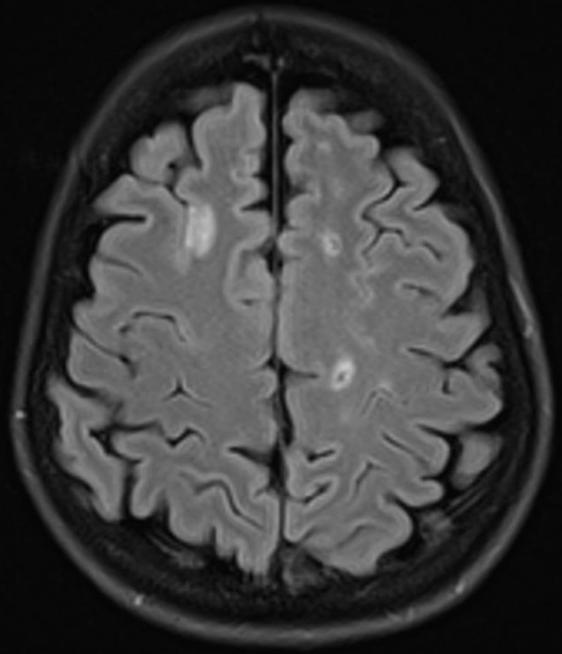


CT J1

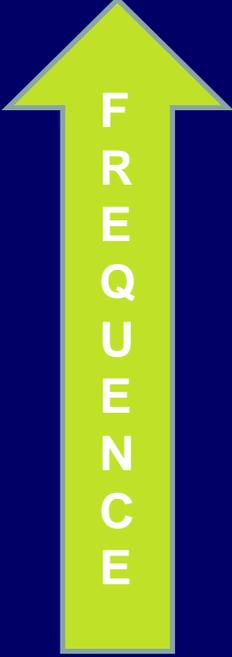


IRM J5



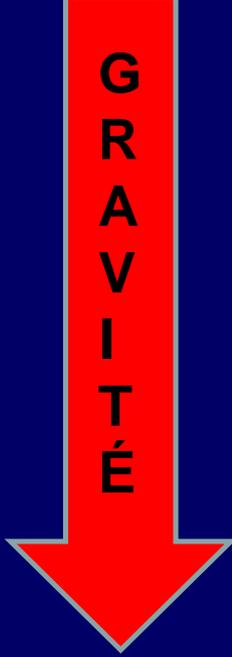


Topographie des déchirures axonales



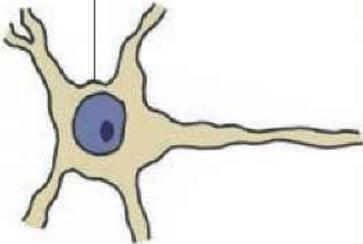
F
R
E
Q
U
E
N
C
E

1. Jonction SG-SB
2. Corps calleux (splénium +++)
3. Tronc cérébral (tegmentum)

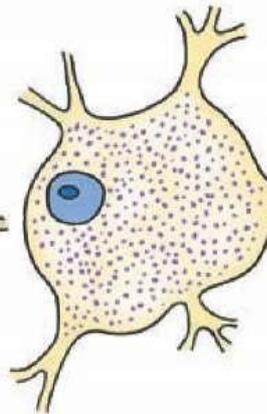


G
R
A
V
I
T
É

G Retrograde transneuronal degeneration



E Chromatolysis



Site of damage

DEGENERESCENCE AXONALE

Myelin

D Infiltration of microglia and macrophages



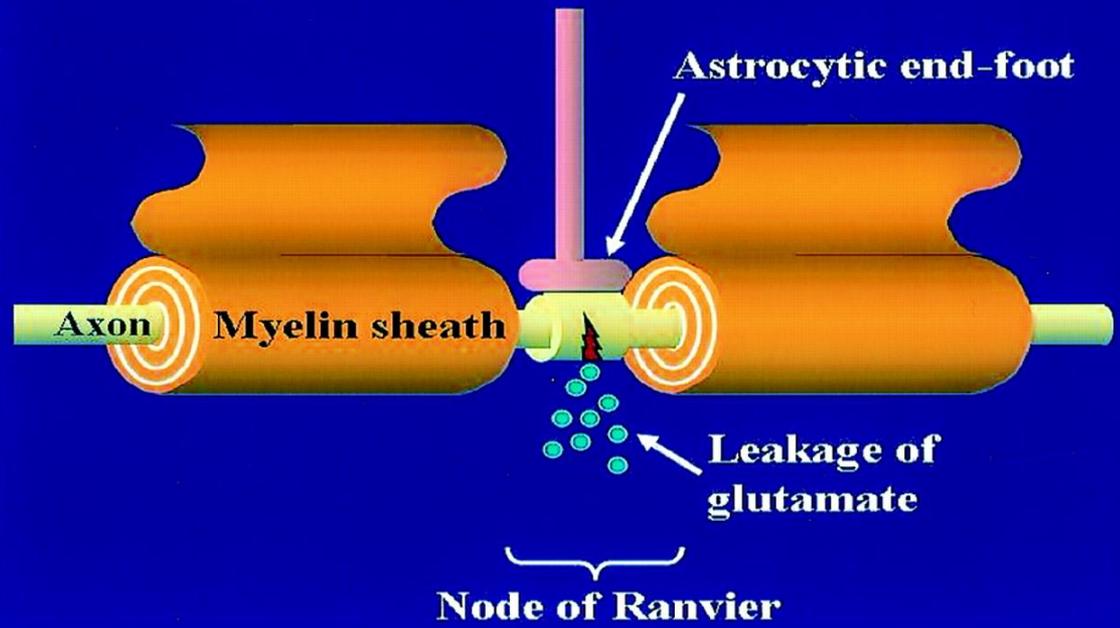
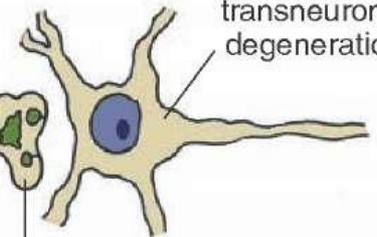
C Myelin debris

B Degeneration of terminal

A



F Anterograde transneuronal degeneration

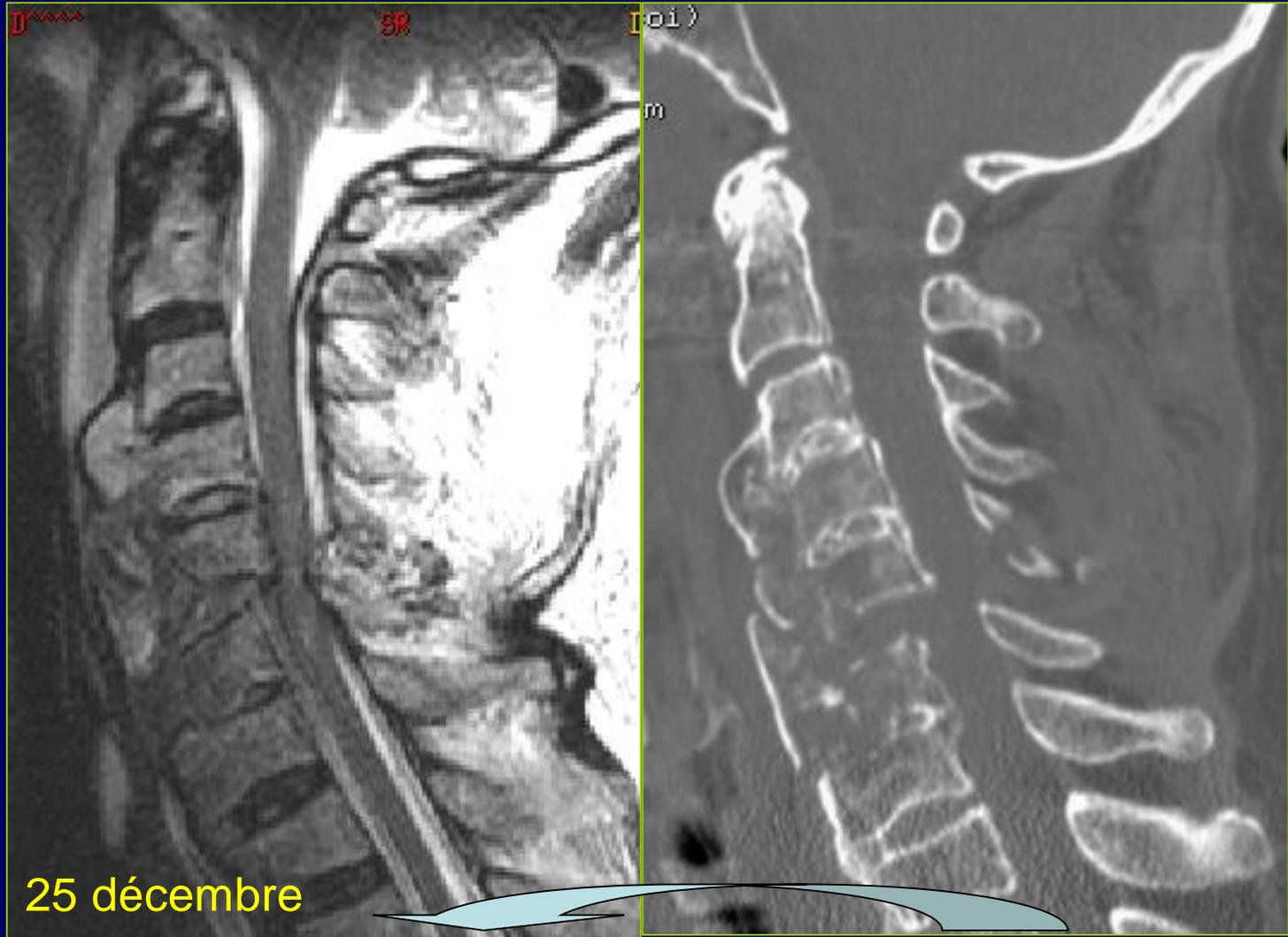


Toshio Moritani et al.
AJNR 2005;26:216-228



CYTOTOXICITE

Trauma spinal *en shortest*



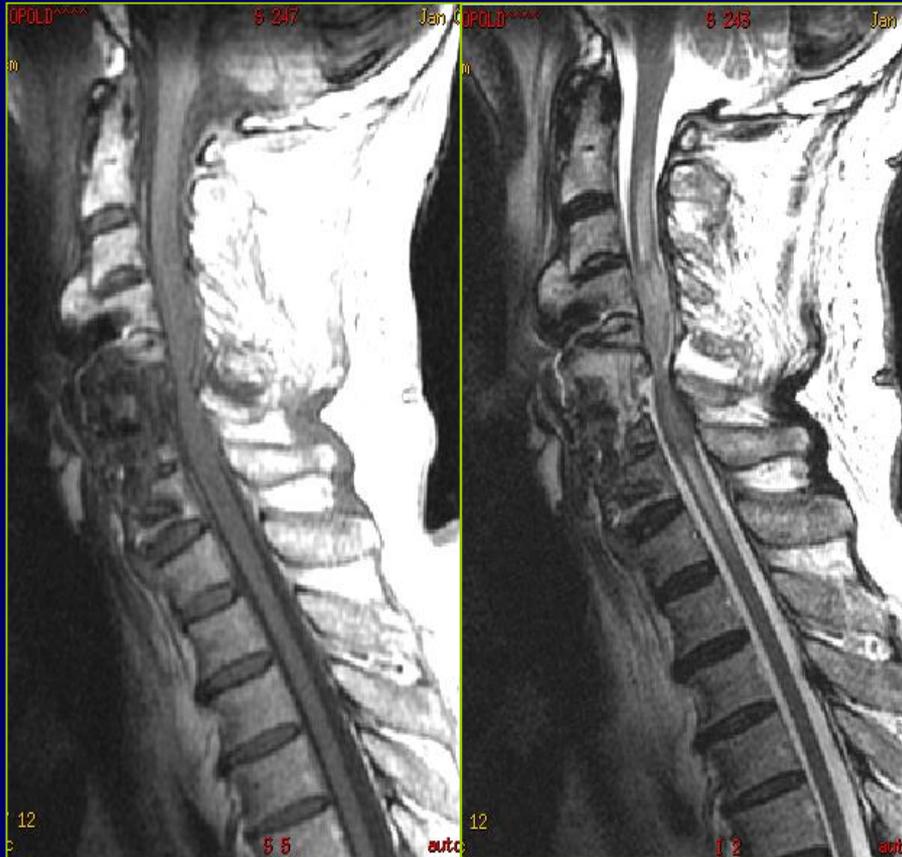
MR

CT



3 janvier

7 janvier

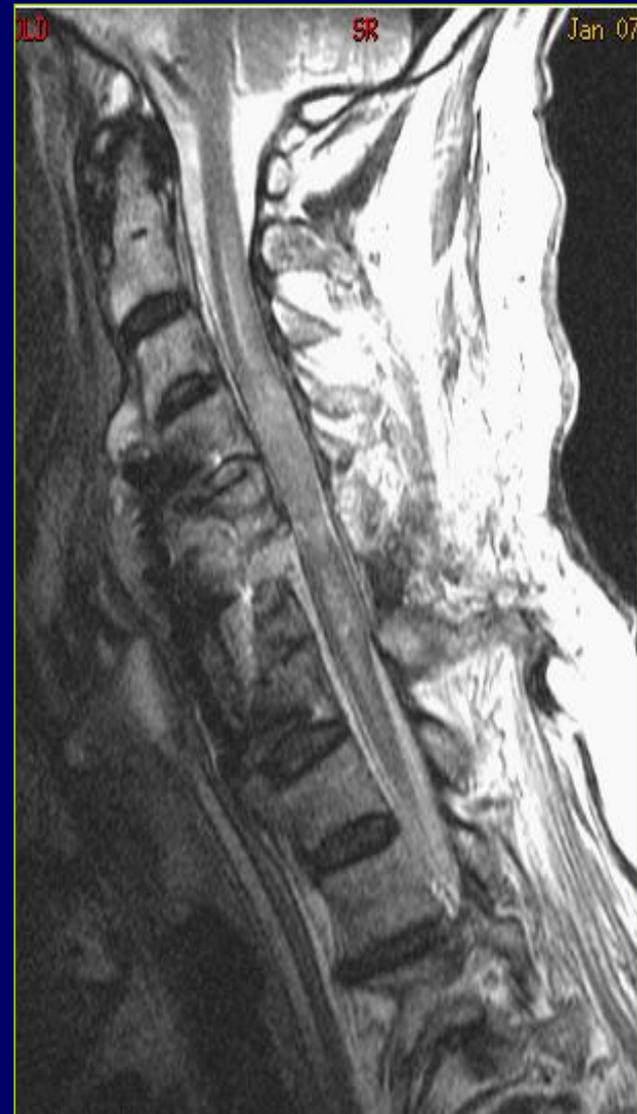




25 décembre

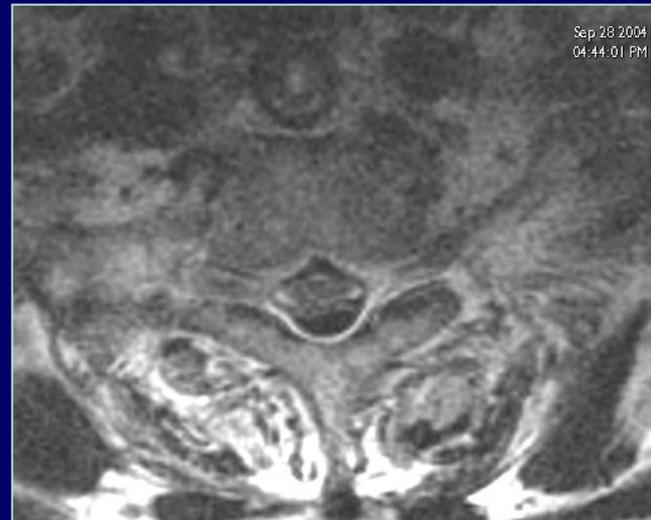
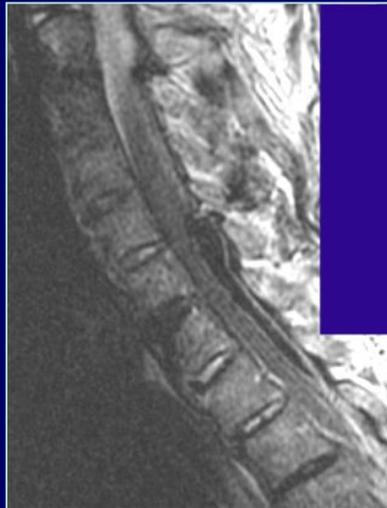
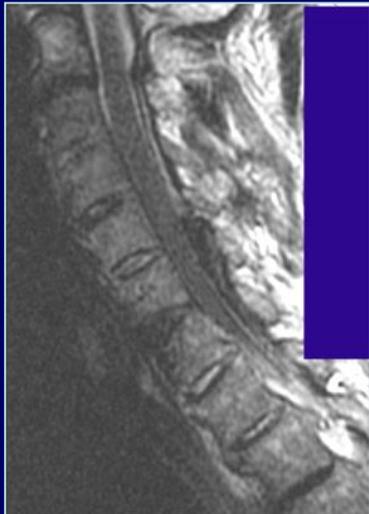
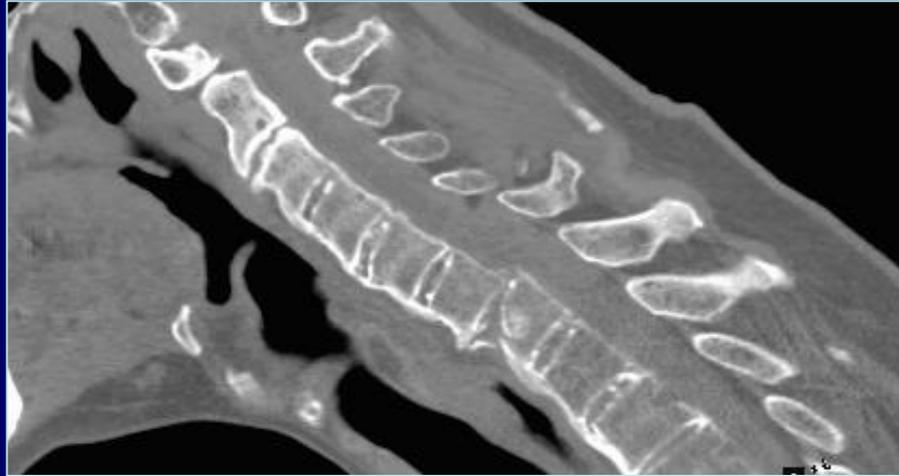


3 janvier



7 janvier

Collections hémorragiques péri-médullaires:
HEMATOME SOUS-DURAL (HSD)



Collections hémorragiques péri-médullaires:
HEMATOME EXTRA-DURAL (HED)

